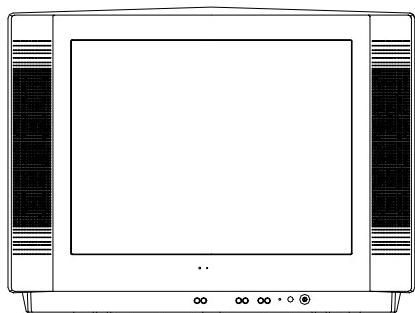


**HT-2180**  
COLOUR TELEVISION  
**Service Manual**



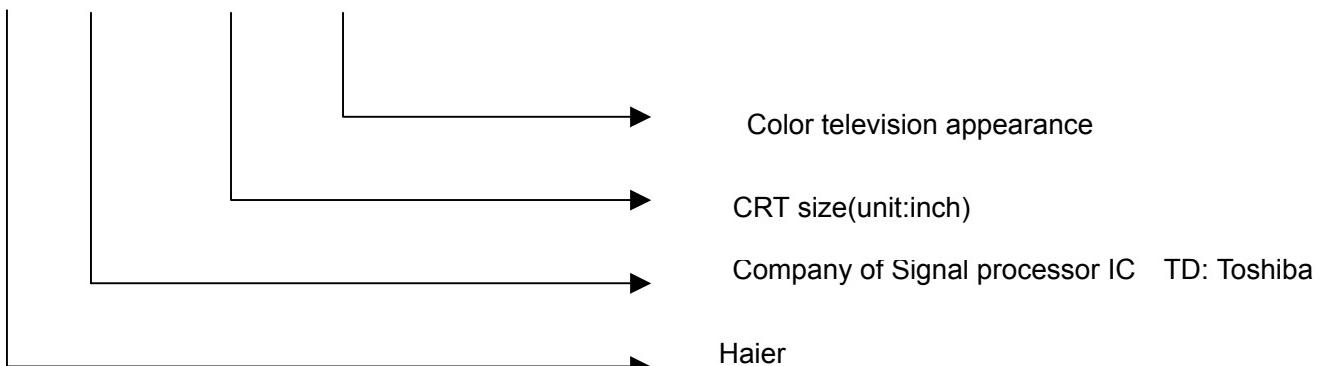
- Features
- 218 programs stored
- Auto-correcting black balance
- Audio/video input, S-Video input

**Hai er Group**

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## 2.Product Code illumination and Series Introduction

H   T - 21   80



**3.Features**

NO.	ITEM	FUNCTION	MODEL	NO.	ITEM	FUNCTION	MODEL
			HT-2180				HT-2180
1	PICTURE	Main IC	1238	24	SOFTWARE	Digital curtain	✓
2		CRT	Flat square	25		Slow fading on & off	✗
3		Color system	PAL	26		Semitransparent menu	✗
4		Audio system	B/G	27		Non-flashing channel changing	✗
5		NO.of channels	218	28		ZOOM	✗
6		OSD language	ENGLISH	29		16:9 mode	✗
7		Multi-picture modes	✓	30		Games	✗
8	AUDIO	AV stereo	✗	31		Calendar	✗
9		Super woofer	✗	32		Child-lock	✓
10		Surrounding sound	✗	33		Multi-functional lock	✗
11		Treble/bass boost	✗	34		No-picture listening	✗
12		Left/right balancer	✗	35		Background light	✗
13		NICAM	✗	36		Auto-timer on	✗
14		Multi-audio modes	✗	37		CCD	✗
15		Tone adjuster	✗	38		V-CHIP	✗
16		MTS/SAP	✗	39	PARAMETER	NO. of built-in speakers	2
17		Auto-volume leveling	✓	40		Audio output power(W)	3
18	JACK	AV input	✓	41		Total power input (W)	70
19		AV output	✓	42		Voltage range (V)	~90-250
20		DVD terminal	✗	43		Power frequency (Hz)	50/60
21		S-video jack	✓	44		Time of sleep timer(MINS)	120
22		Headphone socket	✗	45		Net weight(KG)	23.5
23		SCART socket	✗	46		Gross weight(KG)	25
				47		Net dimension(MM)	610×460×490
				48		Packaged dimension(MM)	685×50×530
				49		Quantity for 20' container	✗
				50		Quantity for 40' container	✗
				51		Quantiry for 40' high container	✗

### 4.Safety Precautions

## SAFETY PRECAUTIONS

### IMPORTANT SAFETY NOTICE

Many electrical identify these parts and mechanical parts in this chassis have special safety-related characteristics! In the Schematic Diagram and Replacement Parts List.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of the manufacturer.

### General Guidance

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents that might result in personal injury caused by electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that might be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with a specified one.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to the high vacuum and large surface area of the picture tube, extreme care should be taken in handling the Picture Tube. Do not lift the Picture Tube by its Neck.

### X-RAY Radiation

#### Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section and the Picture Tube.

For continued X-RAY RADIATION protection, the replacement tube must be of the same type as specified in the Replacement Parts List.

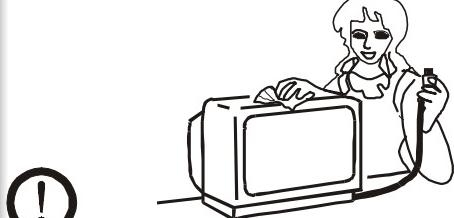
Before returning the receiver to the customer,

Always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to make sure that the set is safe to operate without any danger of electrical shock.

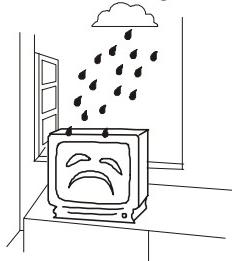
## 5. Warning and Cautions

### Warning and Cautions

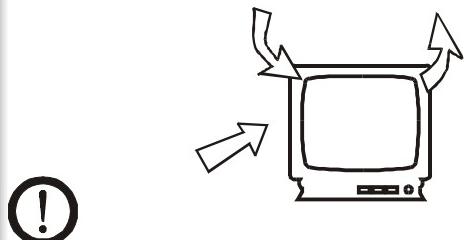
1. When you clean the TV set, please pull out the power plug from AC outlet. Don't clean the cabinet and the screen with benzene, petrol and other chemicals.



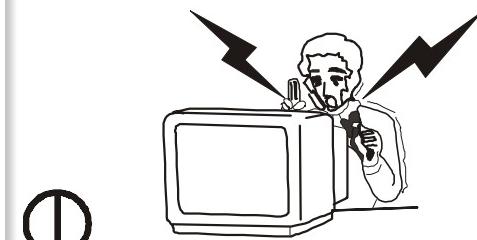
4. To prevent the TV set from firing and electric shock, don't make the TV set rain or moisture.



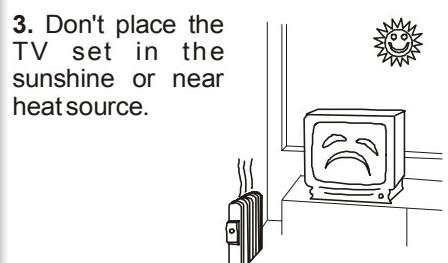
2. In order to prolong the using life of the TV set, please place it on a ventilated place.



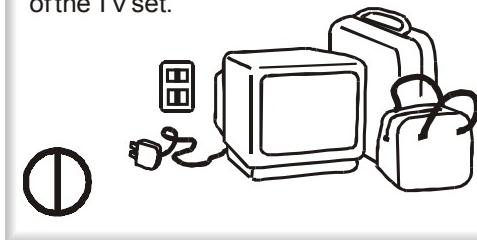
5. Don't open the back cover, otherwise it is possible to damage the components in the TV set and harm you.



3. Don't place the TV set in the sunshine or near heat source.



6. When the TV set isn't going to be used for long time or it is in thunder and lightening, please pull out the plug from AC outlet and the antenna plug from the cover of the TV set.



### Explanation on the display tube

Generally, it is not needed to clean the tube surface. However, if necessary, its surface can be cleaned with a dry cotton cloth after cutting off the power. Don't use any cleanser. If using hard cloth, the tube surface will be damaged.

**CAUTION:** Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS**.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions. **Remember: Safety First.**

### General Servicing Precautions

- 1) Always unplug the receiver AC power cord from the AC power source before:
  - a. Removing or reinstalling any component, circuit board module or any other assembly of the receiver.
  - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
  - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.
  - d. Discharging the picture tube anode.
- 2) Test high voltage only by measuring it with an appropriate high voltage meter or other voltage-measuring device (DVM, FETVOM, etc.) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
- 3) Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
- 4) Do not spray chemicals on or near this receiver or any of its assemblies.
- 5) Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)

**CAUTION:** This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required.

- 6) Do not defeat any plug / socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
- 7) Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
- 8) Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

Always remove the test receiver ground lead last.

- 9) Use with this receiver only the test fixtures specified in this service manual.

**CAUTION:** Do not connect the test fixture ground strap to any heat sink in this receiver.

### Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such

## Warning and Cautions

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components are usually called Electrostatically Sensitive (ES) Devices. Examples of typical ES

devices are integrated circuits and some field effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

- 1) Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock prior to applying power to the unit under test.
- 2) After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- 3) Use only a grounded-tip soldering iron to solder or unsolder ES devices.
- 4) Use only an anti-static type folder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
- 5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
- 6) Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
- 7) Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

- 8) Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise even some normally harmless motions such as mutual brushing of your clothes' fabric or lifting of your foot from a carpeted floor might generate static electricity sufficient to damage an ES device.)

### General Soldering Guidelines

Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500 °F to 600 °F.

Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.

Keep the soldering iron tip clean and well tinned.

Thoroughly clean the surfaces to be soldered. Use a small wire bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.

Use the following unsoldering technique

- a. Allow the soldering iron tip to reach normal temperature. (500 ° F to 600° F)
- b. Heating the component lead until the solder melts.

- c. draw the melted solder with an anti-static, suction-type solder removal device with solder braid.

**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.

Use the following unsoldering technique

- a. Allow the soldering iron tip to reach normal temperature. (500 ° F to 600° F)
- b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
- c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.

- d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

### **Remove /Replacement**

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are of slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined.

#### **Removal**

Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.

Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

#### **Replacement**

Carefully insert the replacement IC in the circuit board.

Carefully bend each IC lead against the circuit foil pad and solder it.

Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

### **“Small-Signal” Discrete Transistor**

#### **Removal/Replacement**

Remove the defective transistor by clipping its leads as close as possible to the component body.

Bend into a “U” shape the end of each of three leads remaining on the circuit board.

Bend into a “U” shape the replacement transistor leads.

Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to insure metal to metal contact then solder each connection.

### **Power Output, Transistor Device**

### Removal/Replacement

Heat and remove all solder from around the transistor leads.

Remove the heat sink mounting screw (if so equipped).

Carefully remove the transistor from the heat sink of the circuit board.

Insert new transistor in the circuit board.

Solder each transistor lead, and clip off excess lead.

Replace heat sink.

### Diode Removal/Replacement

Remove defective diode by clipping its leads as close as possible to diode body.

Bend the two remaining leads perpendicularly to the circuit board.

Observing diode polarity, wrap each lead of the new diode round the corresponding lead on the circuit board.

Securely crimp each connection and solder it.

Inspect (on the circuit board copper side) the solder joints of the two “original” leads. If they are not shiny, reheat them and if necessary, apply additional solder.

### Fuse and Conventional Resistor

#### Removal/Replacement

1) Clip each fuse or resistor lead at top of the circuit board hollow stake.

2) Securely crimp the leads of replacement component around notch at stake top.

3) Solder the connections

**CAUTION:** Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

### Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds foil to the circuit board causing the foil to separate from or “lift-off” the board. The following guidelines and procedures should be followed whenever this condition is encountered.

### *At IC Connections*

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

- 1) Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
- 2) Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
- 3) Bend a small “U” in one end of a small gauge jumper wire and carefully crimp it around the IC

pin. Solder the IC connection.

- 4) Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

### ***At other connections***

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

Remove the defective copper pattern with a sharp knife.

Remove at least 1/4 inch of copper, to insure that a hazardous condition will not exist if the jumper wire opens.

Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.

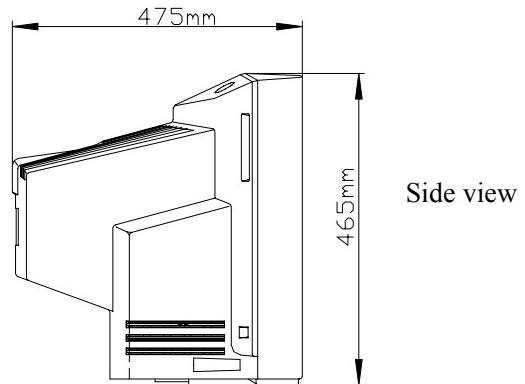
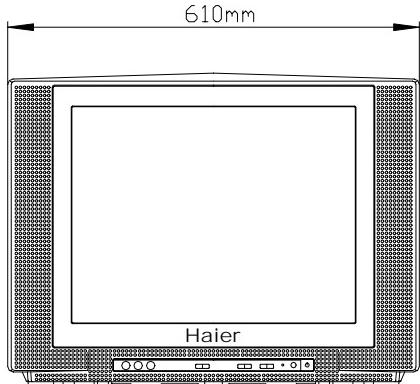
Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.

Carefully crimp and solder the connections.

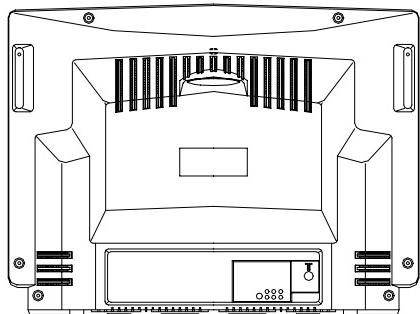
**CAUTION:** Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

## **6. Net dimension**

Front view

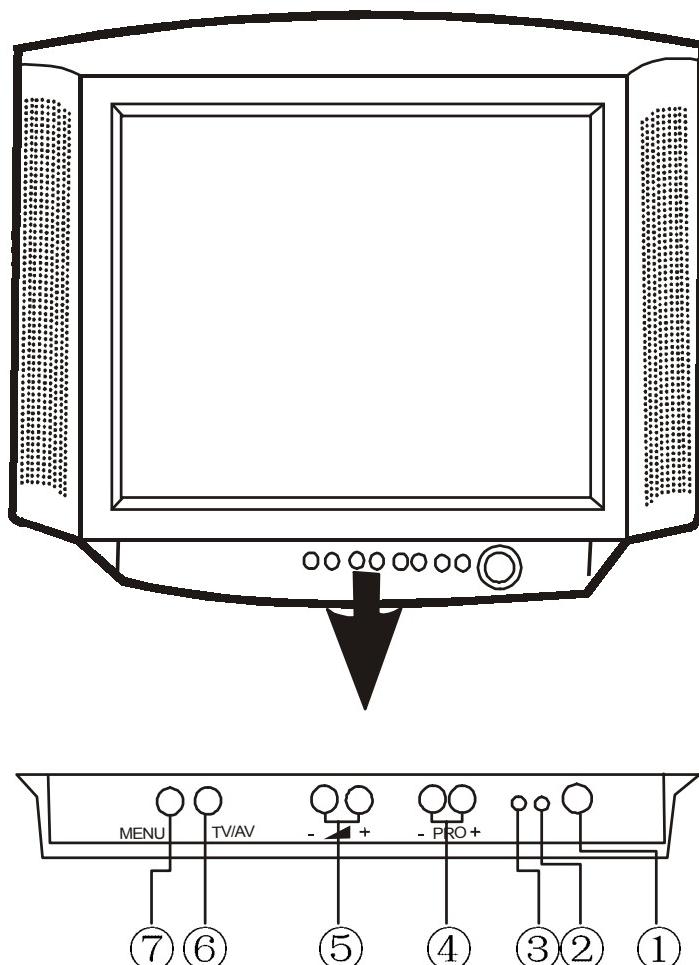


back-view



**HT-2180**

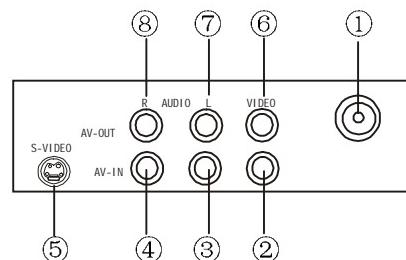
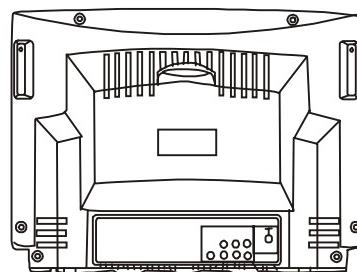
## **7. Parts and Functions**



- ① Power switch button
- ② Infrared sensor window
- ③ Power indicator
- ④ Programme up/down button
- ⑤ Volume up/down button
- ⑥ TV/AV alternating button
- ⑦ Menu display button

The sockets on the back cover

- ①Aerial socket
- ②Video input socket
- ③Audio input (L) socket
- ④Audio input (R) socket
- ⑤S-Video input socket
- ⑥Video output socket
- ⑦Audio output (L) socket
- ⑧Audio output (R) socket



## 8. Remote Controller Functions

### Remote Controller



(Figure 1)

MARK	FUNCTION DESCRIPTION
■	MUTE
○	STANDBY
0-9	ONE DIGIT SELECTION
-/-	ONE OR TWO OR THREE DIGITS PRE-SELECTION
TV/AV	TV/VIDEO1/S-VIDEO2 SELECTION
MENU	MENU DISPLAY
SYS	SYSTEM SELECTION
SWAP	ALTER PROGRAMME BETWEEN THE PRESENT AND THE LAST
SCAN	PROGRAMMES SCAN
▲ ▼	FUNCTION SELECTION
◀ ▶	FUNCTION ITEM ADJUSTMENT
SLEEP	SLEEP TIMER
DISPLAY	SCREEN DISPLAY PROG No. AND CHILDLOCK
SEL.C.PIC	PICTURE MODE SELECTION
SEL.C.VOL	VOLUME MODE SELECTION
- V+	VOLUME CONTROL
-CH+	PROGRAM NUMBER UP/DOWN
Color button	Red, green, yellow, blue, directly selecting button (in teletext mode)
[ ]	TV/teletext alternation
[ ]	Index button (in teletext mode)
SUB	SUB page button (in teletext mode)
[X]	Cancel button (in teletext mode)
[ ]	Overlapping button (in teletext mode)
[ ]	Zoom button
[ ]	Holding button
[ ]	To reveal concealed text (in teletext mode)



(figure 2)



(figure 3)

Two 1.5V size AA batteries are required.

To install batteries:

1. Turn the remote control unit upside down. Press down the grip of battery compartment and slide the grip in the direction of the arrow.(figure 2)
2. Install two new batteries, make sure that battery polarity matches with the (+) (-) marks inside the battery compartment. Otherwise it can damage the unit.(figure 3)

### 9.Program Diagram

Insert the power plug into the power line socket and insert the antenna plug into the antenna socket on the rear panel. Press down the power switch of the TV set. The red indicator light goes on. If no picture appears, press the button  on the remote controller. Follow the steps below.

#### A. Program preset

##### 1) *Auto searching and storing program*

Press MENU button on the remote controller then use the “” key to call up the “tune program” menu on the screen. Then Press the menu “” item to select it. Use the “” key to select the bar “auto search program” then press the “” to make sure. If you want to stop ,press the key “”.

##### 2) *Manual search and fine tune*

Press MENU button then use the “” key to call up the “tune program” menu on the screen. Then Press the menu “” item to select it. Use the “” key to select the bar “Manual search program” then press the “” to make sure.

##### 3) *Deleting channel number*

Press Program up/down buttons to select a channel to skip. Press MENU to call Menu. then use the “” key to call up the “tune program” menu on the screen. Then Press the menu “” item to select it. Use the “” key to select the bar “Cannal number” then press the “” to make sure. Enter the number that you do not want to see .Then Then select “SKIP” and select SKIP to ON. Now the program number is deleted. Repeat the above steps and select SKIP to OFF, the deleted program number can be resumed.

#### B. Volume tuning

Press VOLUME buttons  - to increase and  + to decrease the volume.

#### C Personal preference settings

##### *Picture modes*

Press SELC PICTURE repeatedly to change among MEMORY 1, MEMORY2,MEMORY3,to chang the Picture Mode.

## 10.Maintenance Service and Trouble shooting

### 1.Factory adjustment information

Operation method: after the appliance is switched on, make the volume value to zero. Then press “ V- ” key on the TV set and press the DISP button on remote controller at the same time to enter the S state. Press DISP button one times and “S” will disappear, Repeat the first step, you will enter the D mode. Now one “D” is displayed on the TV screen.

Press PRO- and PRO+ buttons to select items for adjustment.

Press VOL- and VOL+ buttons to adjust selected items.

Press the POWER button to switch off the appliance and go back to the normal state.

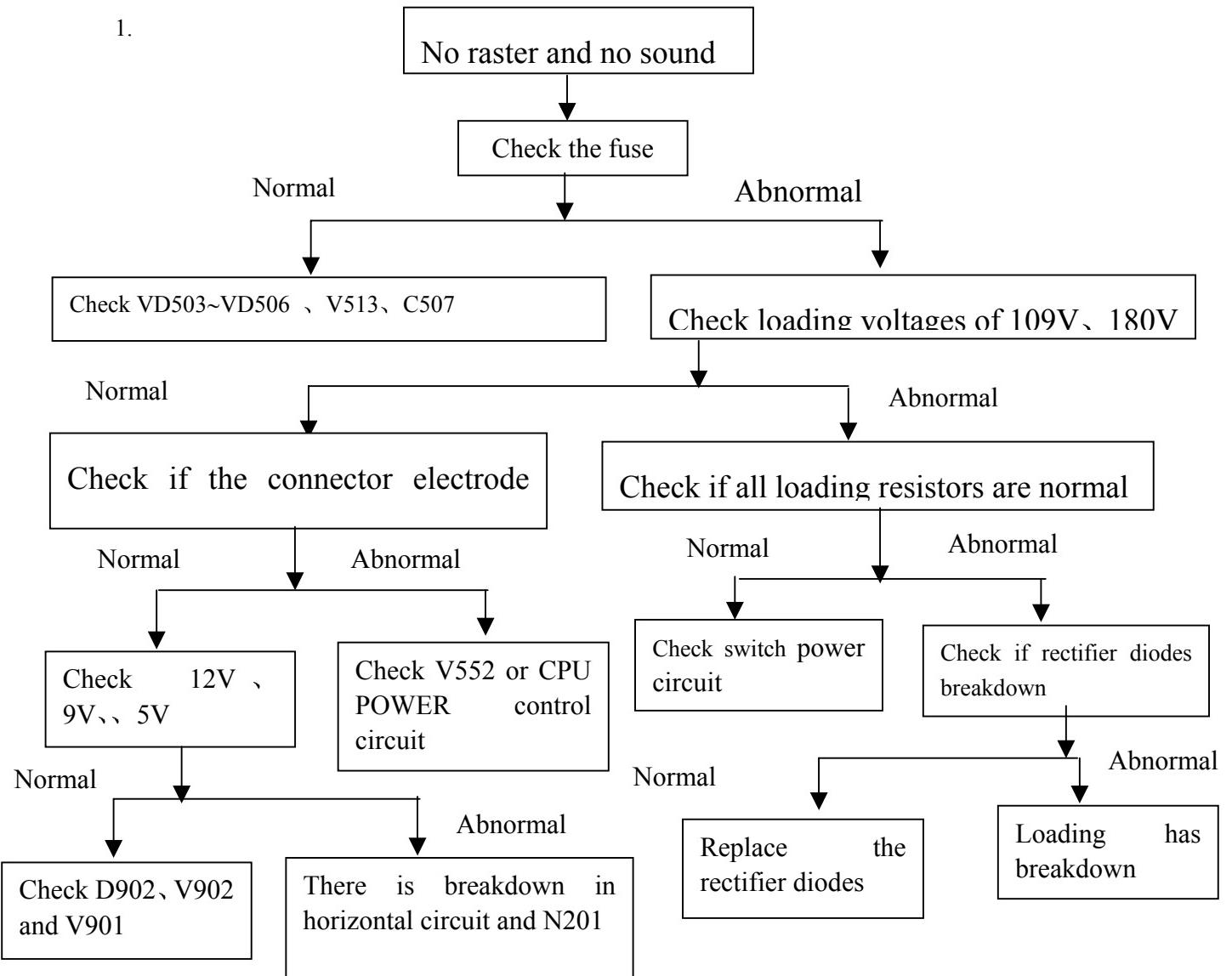
Maintenance menu (Table 8)

Item	Specifications	Default Value	Variable Mark
RCUT	RED CUT OFF BALANCE	20	*
GCUT	GREEN CUT OFF BALANCE	20	*
BCUT	BLUE CUT OFF BALANCE	20	*
GDRV	GREEN DRIVE BALANCE	40	*
BDRV	BLUE DRIVE BALANCE	40	*
CNTX	CONTRAST MAX VALUE	7F	
BRTC	BRIGHTNESS	48	
COLC	NTSC COLOUR CENTER VALUE	2E	
TNTC	TINT CENTER VALUE	48	
COLP	PAL COLOUR CENTER VALUE	20	
COLS	SECAM COLOUR CENTER VALUE	40	
SCOL	SUB SCOL TRAST	07	
SCNT	SUB CONTRAST	0E	
CNTC	SUB CONTRAST CENTER VALUE	50	
CNTN	SUB CONTRAST MIN VALUE	08	
BRTX	SUB BRIGHTNESS MAX VALUE	35	
BRTN	SUB BRIGHTNESS MIN VALUE	35	
COLX	SUB COLOUR MAX VALUE	3F	
COLN	SUB COLOUR MIN VALUE	00	
TNTX	SUB TINT MAX VALUE	28	
TNTN	SUB TINT MIN VALUE	28	
ST3	TV-3.58 SHARPNESS	25	
SV3	AV-3.58 SHARPNESS	25	
ST4	TV-4.43 SHARPNESS	25	
SV4	AV-4.43 SHARPNESS	25	
ASSH		07	
SHPX	SHARPNESS MAX VALUE	38	
SHPN	SHARPNESS MIN VALUE	15	
TXCX	OSD CONTRAST MAX VALUE	1F	
RGCN	OSD CONTRAST MIN VALUE	1F	
ABL	ABL	37	
DCBS		33	
CLTO		0B	
CLTM		4B	
CLVO		4B	
CLVD	VCD DATUM0	4B	
DEF	VCD DATUM1	01	
AKB		00	

# Maintenance Service and Trouble shooting

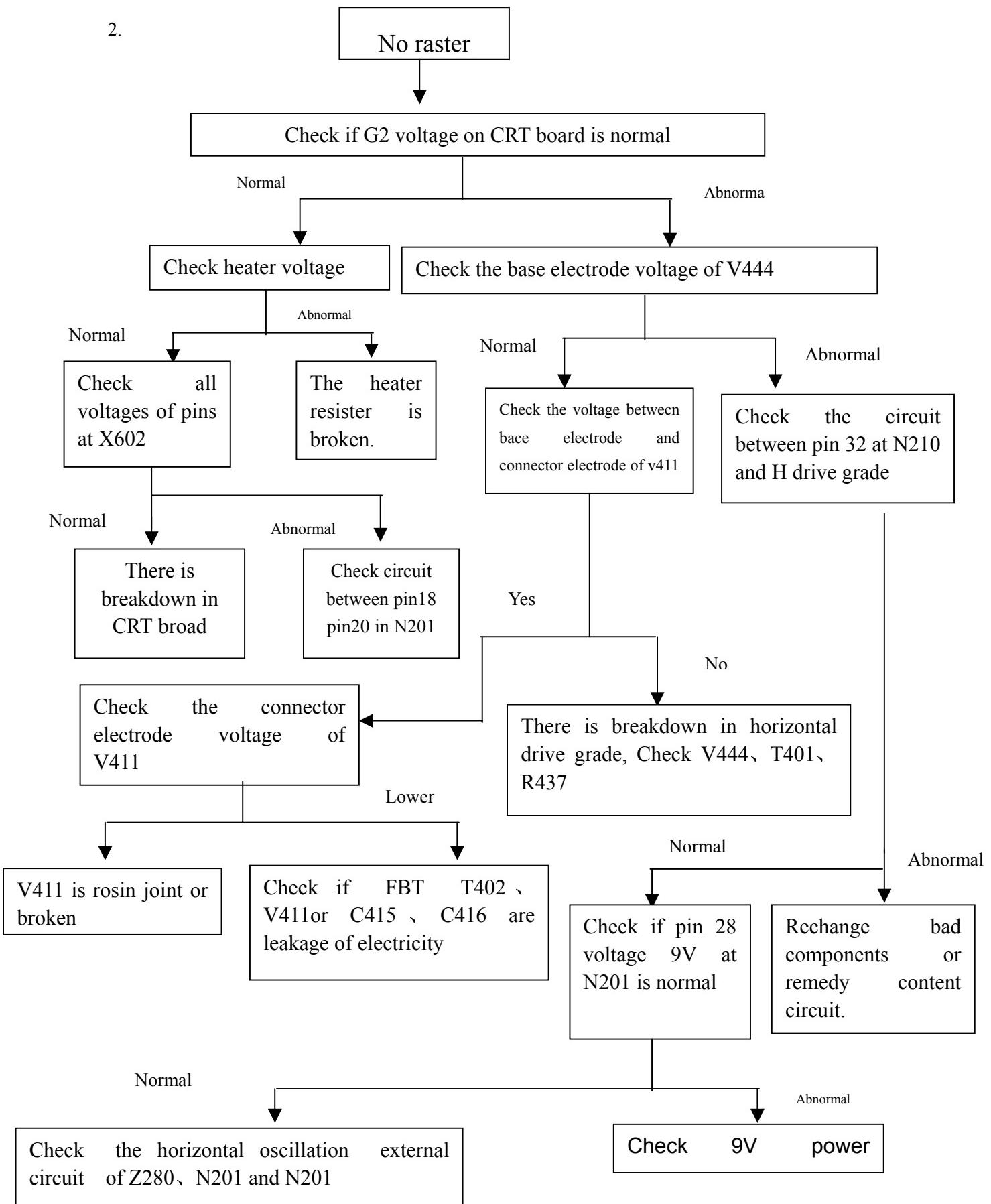
Item	Specifications	Default Value	Variable Mark
SECD		08	
HPOS	50Hz HORIZONTAL POSITION	0F	*
VP50	50Hz VERTICAL POSITION	02	*
HIT	50Hz VERTICAL HEIGHT	27	*
HPS	50/60Hz HORIZONTAL POSITION	05	*
VP60	60Hz VERTICAL POSITION	00	*
HITS	50/60Hz VERTICAL HEIGHT	01	*
VLIN	50Hz VERTICAL LINEAR CORRECTION	08	*
VSC	VERTICAL S CORRECTION	04	*
VLIS	50/60Hz VERTICAL LINEAR CORRECTION	00	*
VSS		00	
DPC	50Hz PINCUSHION CORRECTION	00	
DPCS	50/60Hz PINCUSHION CORRECTION	00	
KEY	50Hz TRAPEZIUM CORRECTION	00	
KEYS	50/60Hz TRAPEZIUM CORRECTION	00	
WID	50Hz HORIZONTAL WIDTH	00	
WIDS	50/60Hz HORIZONTAL WIDTH	00	
VCP	VERTICAL COMPENSATION	00	
CNR	CONNER CORRECTION	00	
HCP	HORIZONTAL COMPENSATION	00	
SBY	SECAM B-Y	08	
SRY	SECAM R-Y	08	
RAGC	RADIO FREQUENCY AGC	23	
AFT	AUTO FREQUENCY TRACE	15	
HAFC	HORIZONTAL AUTO FREQUENCY CONTROL	00	
V25	25 PERCENT OF VOLUME	25	
V50	50 PERCENT OF VOLUME	50	
BRTS	SUB BRIGHTNESS	00	
VM2	SYS	24	
MOD0	MODE0	41	
MOD1	MODE1	17	
MOD2	MODE2	DC	
NO SIGNAL LEFT	NO SIGNAL LEFT	04	*
NO SIGNAL RIGHT	NO SIGNAL RIGHT	70	*
NO SIGNAL DTOP	NO SIGNAL DTOP	*	*
NOSIGNAL DBOTTOM	NO SIGNAL DBOTTOM	*	*
WAIT TIME	WAIT TIME	48	*
SELF	ROM DATA CHECK SELF	00	
SELF VOC	VCO CHECK SELF	80	
SELF AGC	AGC CHECK SELF	80	
SELF BRTC	BRIGHTNESS CENTER VALUE CHECK SELF	75	
SELF CNTC	CONTRAST CENTER VALUE CHECK SELF	23	
SELF TNTC	TINT CENTER VALUE CHECK SELF	00	
SELF COL	COLOUR CENTER VALUE CHECK SELF	20	
OSD	OSD POSITION	07	
OPT	OPTION	07	

You can change the DATA with “\*” mark when necessary.



## Maintenance Service and Trouble shooting

2.



# Maintenance Service and Trouble shooting

3.

Horizontal bright line

Break R908 , let multimeter preset on  $R \times 1K$  and red meter rod grounding, let black meter rod tap pin 4 at N402.see if the bright line can wide at instant.

YES

Check if R907、R448 are rosin joint and the resistor value of R448 changes larger.

YES

Normal

NO

Check the external circuit of N201 and N201.

NO

There is breakdown in the vertical output grate.

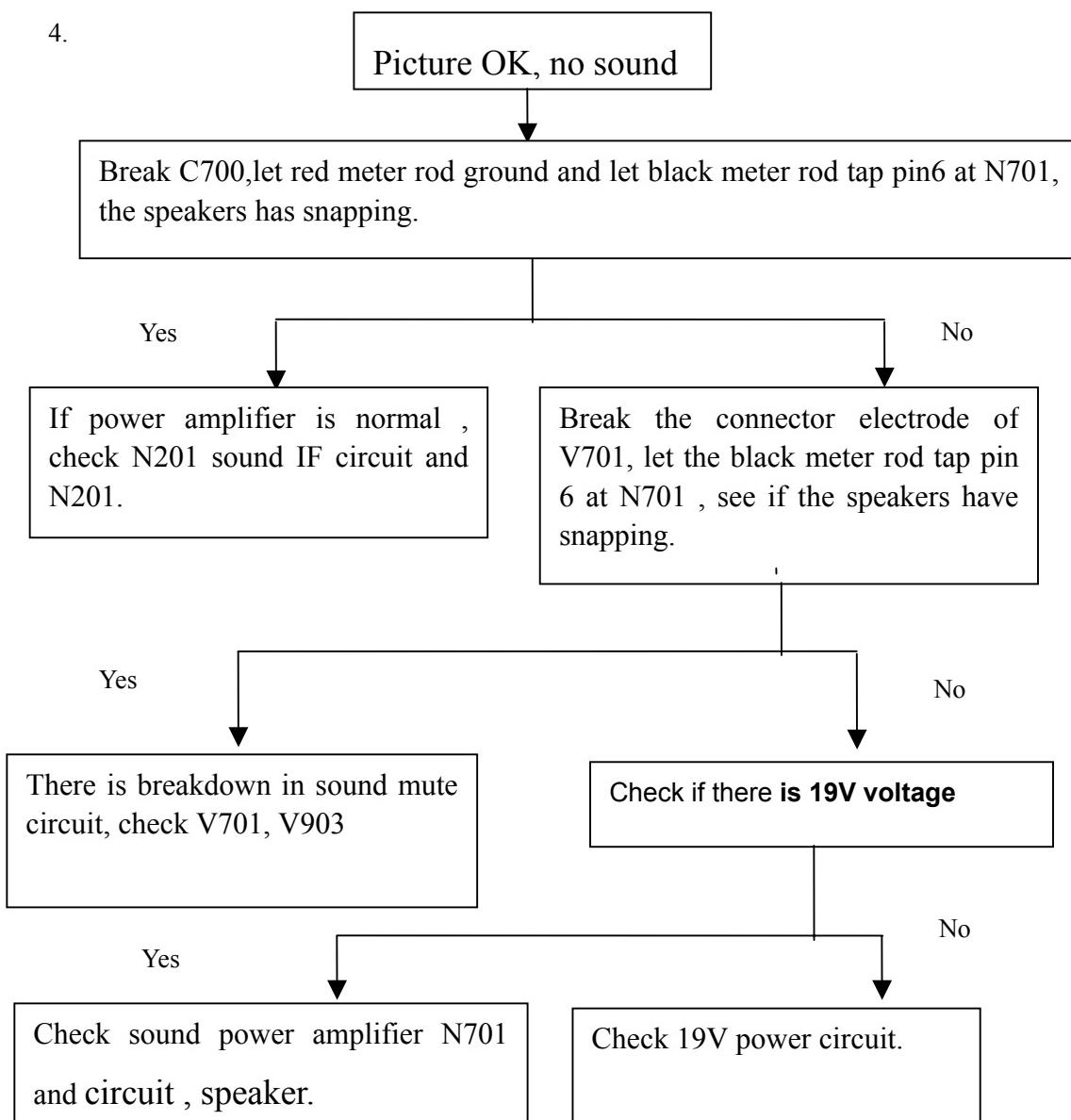
YES

Check if the connector of the deflection yoke is connected well, and C433 is rosin joint or cutoff, and the external circuit of N402 and N402.

NO

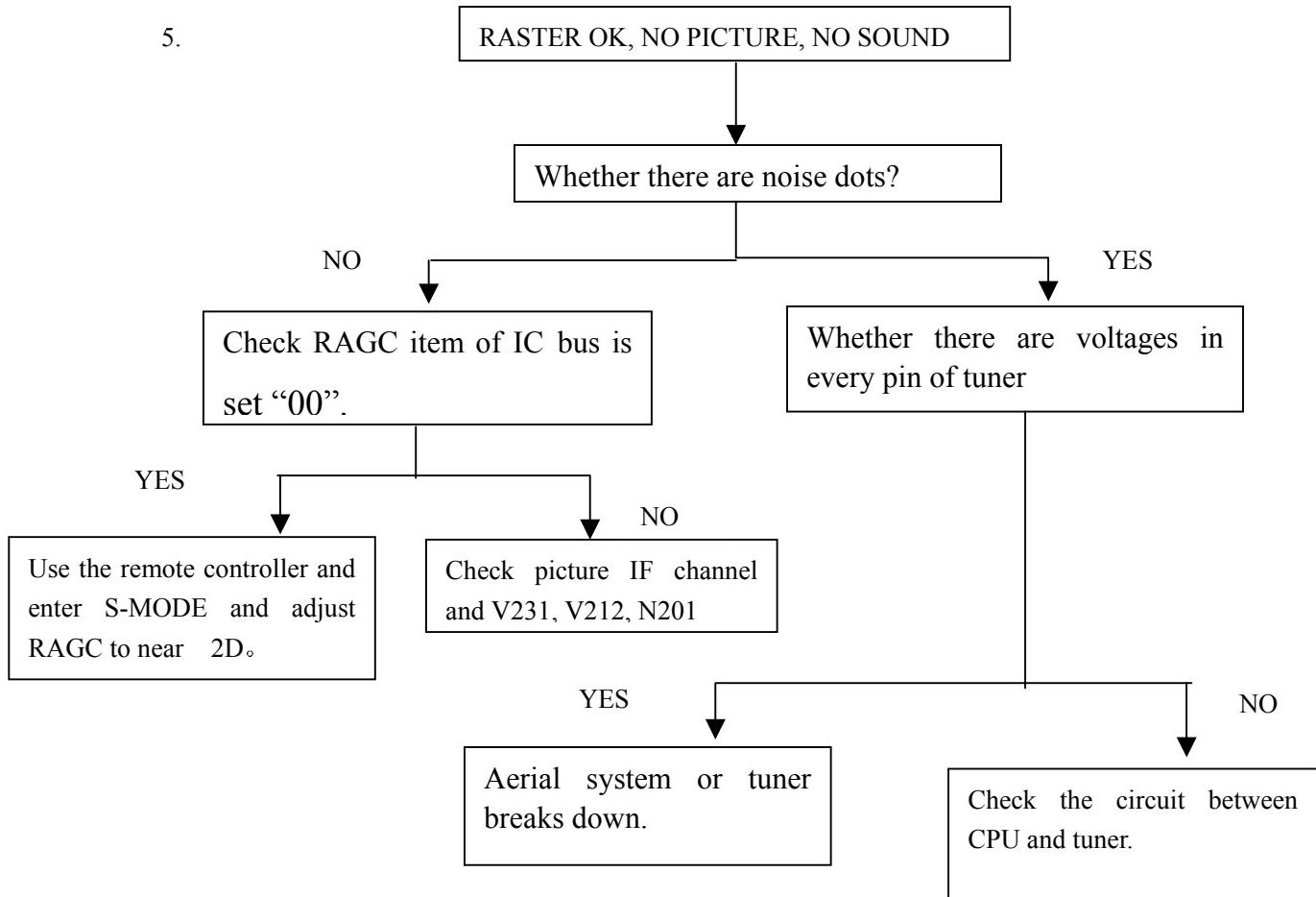
Check 26V power circuit.

4.

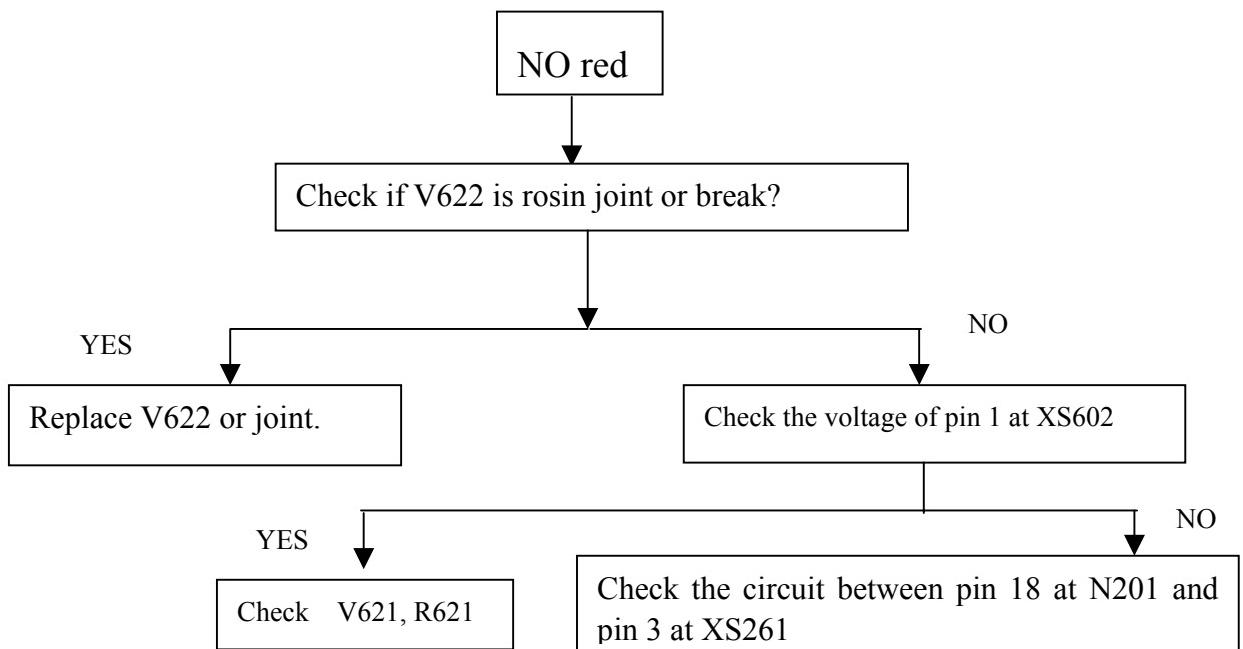


# Maintenance Service and Trouble shooting

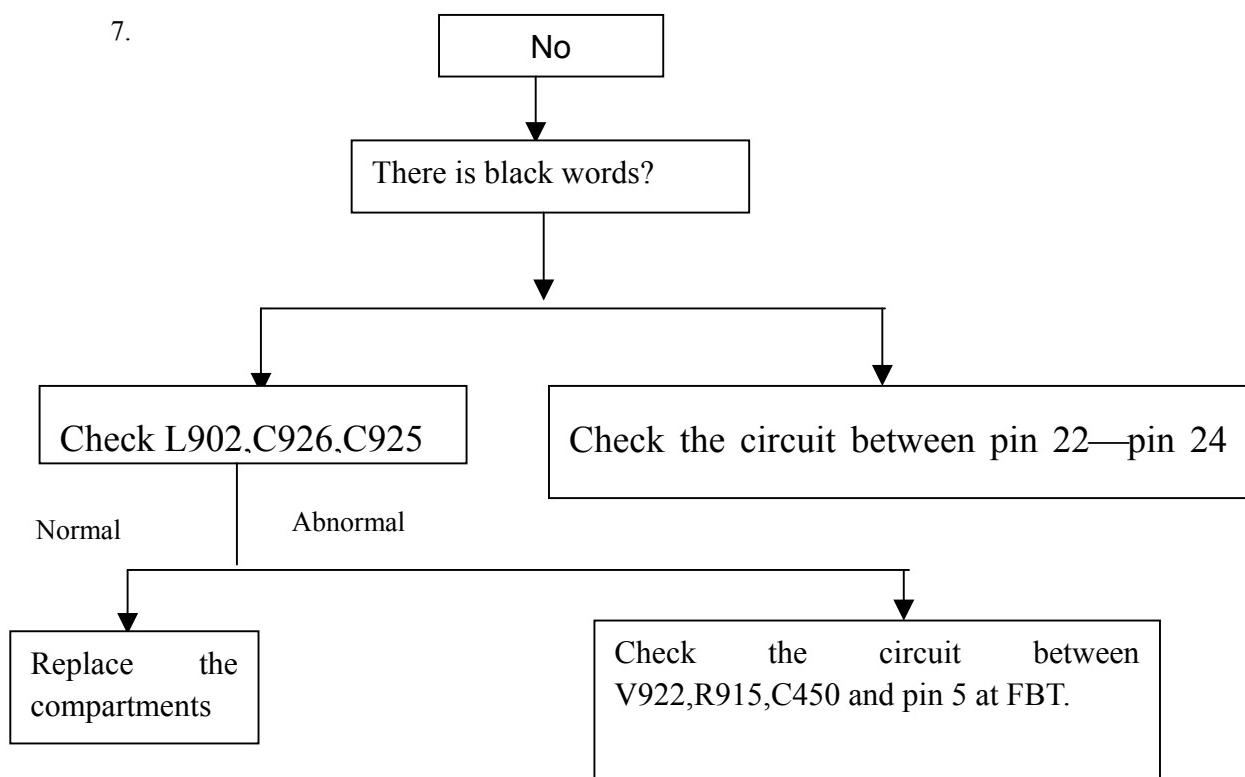
5.



6.

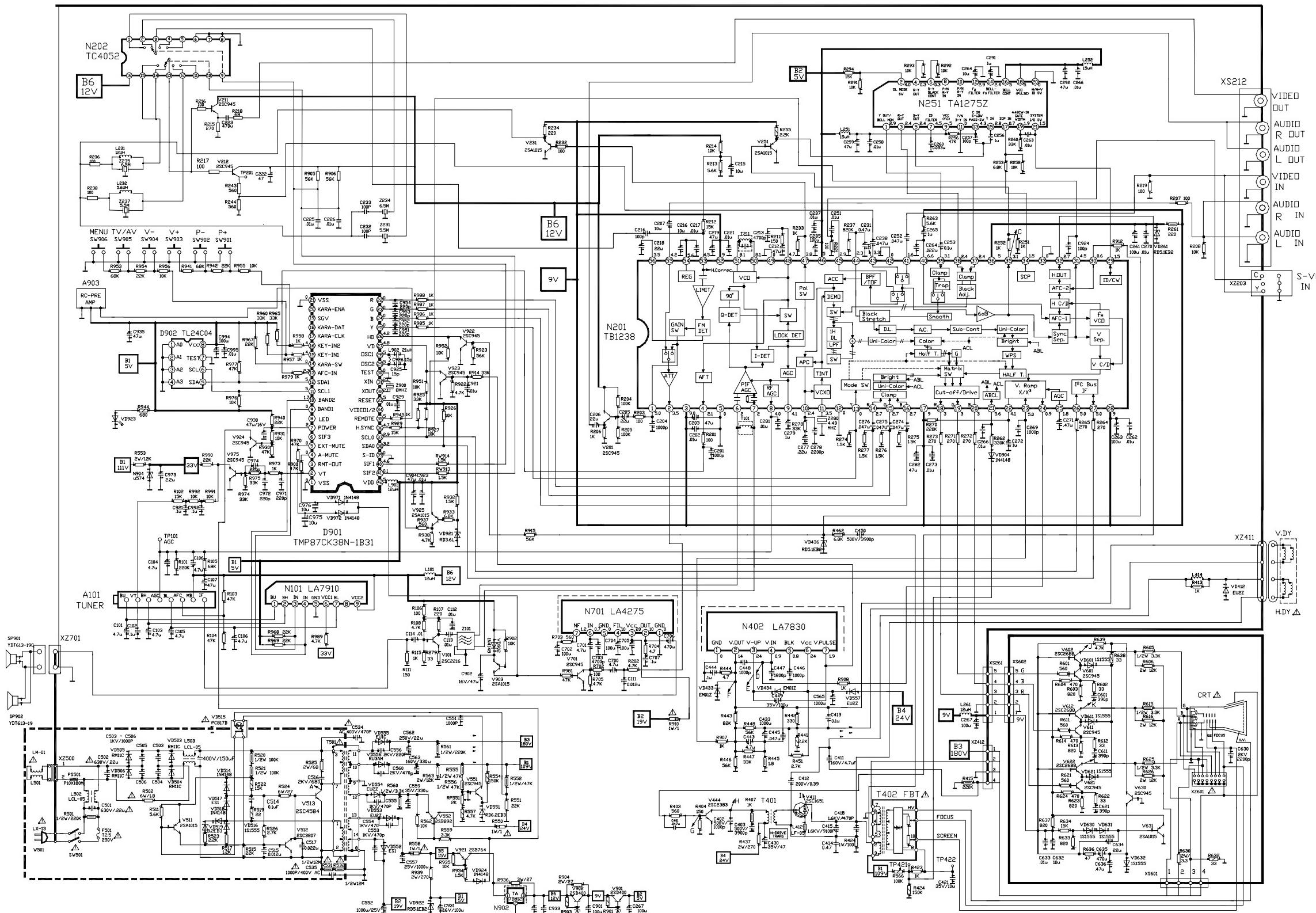


7.

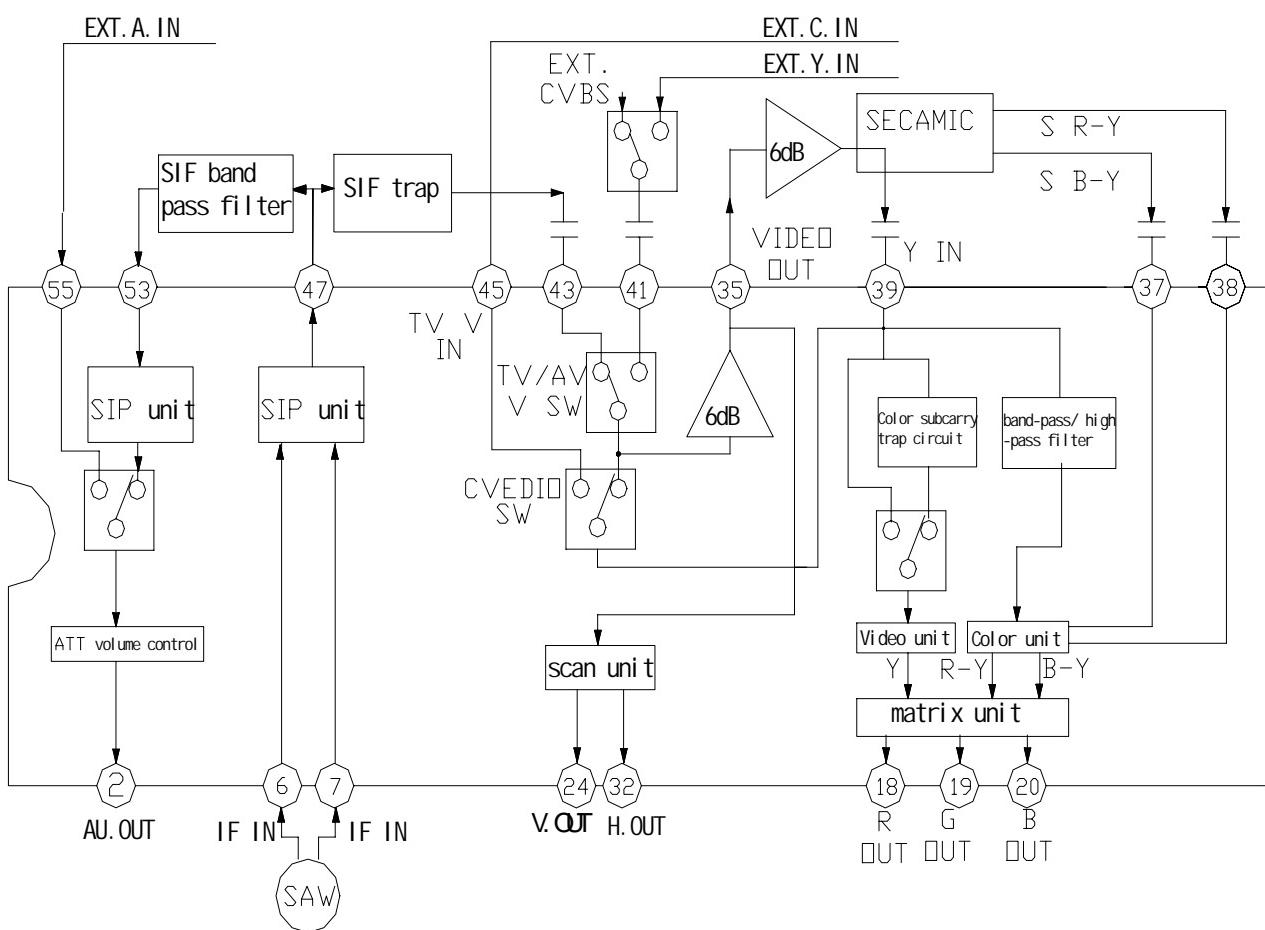
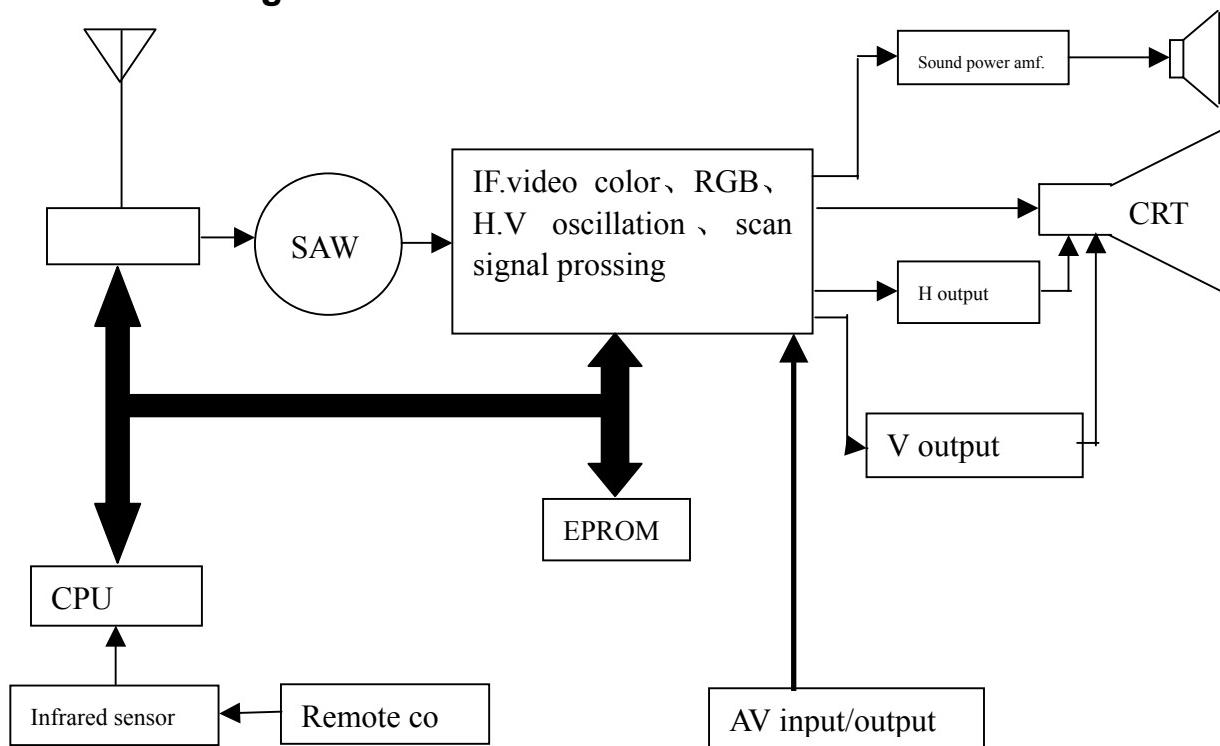


# Circuit Diagram

## 11 .Circuit Diagram

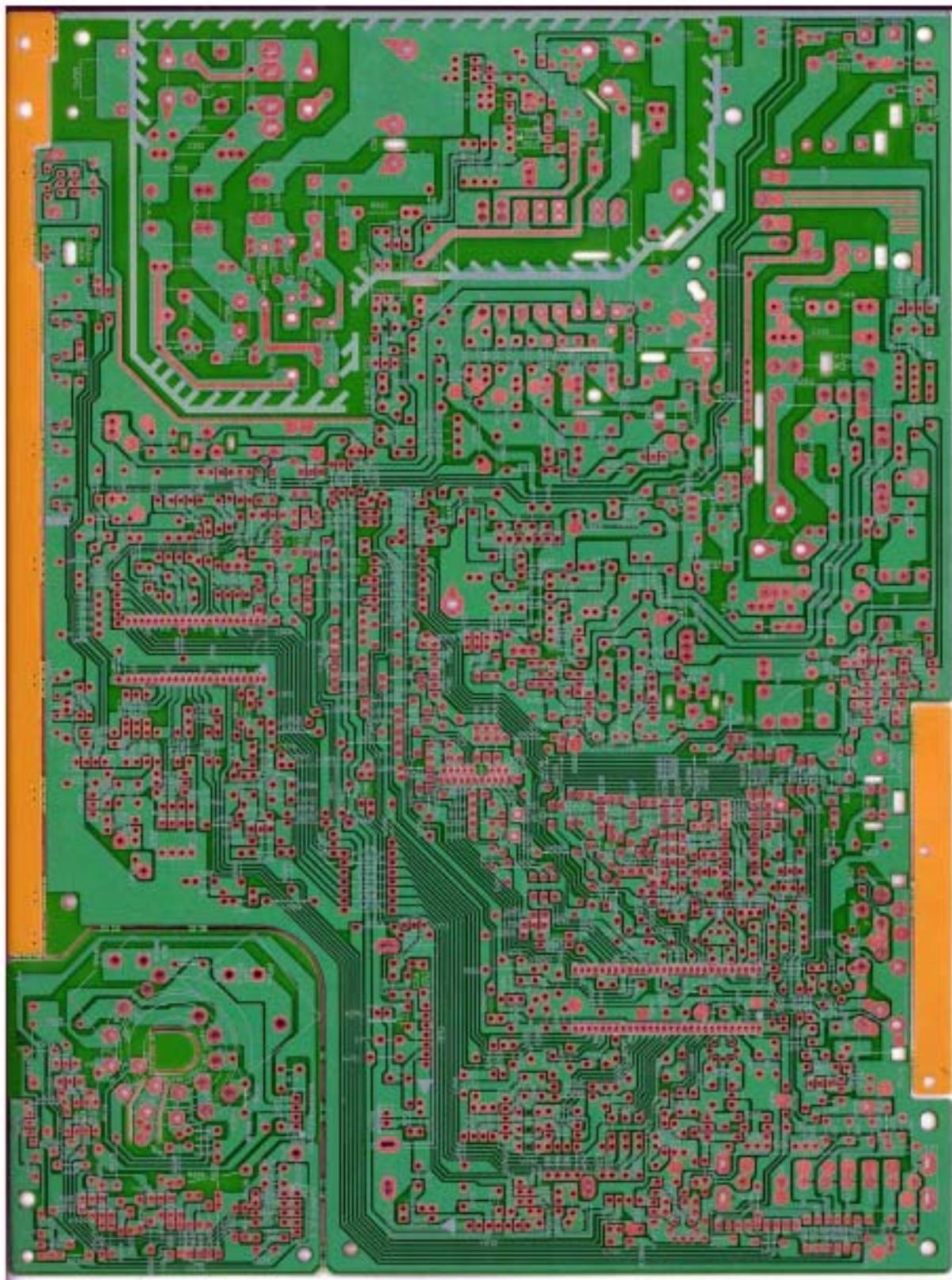


## Circuit Block Diagram



Circuit Diagram

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## 12. Circuit Explanation

IC function pins

### 1) Integrated circuits used in this model

- 1) TBA1238AN: picture intermediate amplification, sound intermediate amplification, video signal processing, chrominance signal processing, RGB output circuit, horizontal and field oscillating scan circuit.
- 2) TMP87CK38N: super central micro-processing unit.
- 3) LA7830 (LA7833): field scan circuit
- 4) LA4275: sound power amplifier circuit
- 5) LA7910: wave band change-over switch

### 2) IC functions and parameters

No.	Function	Reference Voltage(V)	Reference Resistance(KΩ )	
			Forward	Backward
1	Grounding	0	0	0
2	Output	14	0.45	1.6
3	Pump power supply output	24(26)	0.5	∞
4	Field scanning sawtooth signal input	0.9	0.9	1
5	Field scanning sawtooth signal forming terminal	0.8	0.65	1.4
6	Field power supply	24(26)	0.5	4.5
7	Field power supply input	1.9	0.72	30

Item	Function	Reference Voltage(V)	Reference Resistance(KΩ )	
			Forward	Backward
1	Grounding	0	0	0
2	Power amplifier output	10	0.55	4.5
3	Power supply	20	0.42	2.8
4	Ripple wave filtering	10	1.2	2.4
5	Grounding	0	0	0
6	Audio Input	0.7	1.1	∞
7	Feedback	0.2	0.72	2.0

## Circuit Explanation

1

---

**N201**

**TB1238AN**

Pin	Function	Reference Voltage(V)		Reference Resistance(KΩ )	
		Without signal	With signal	Forward(Ω)	Backward(Ω)
1	Unweighted	5.0	5.0	800	2000
2	Audio signal output	3.5	3.5	750	2000
3	PIF circuit power supply	9.0	9.0	460	600
4	AFT output and auto-adjusting	2.1	2.1	750	600
5	PIF circuit grounding	0	0	0	0
6	IF signal input pin	2.0	2.0	680	2000
7	IF signal input pin	2.0	2.0	680	2000
8	RF AGC output	6.6	4.0	680	2000
9	IF AGC filtering	5.2	4.1	760	2000
10	Color demodulation APC filtering	2.4	2.4	750	3000
11	4.43MHz crystal oscillator	3.5	3.5	820	3000
12	Y/C circuit grounding	0	0	0	0
13	Analog RGB and AKB mode alternating	0	0	720	650
14	Analog R signal input	2.7	2.7	800	3000
15	Analog G signal input	2.7	2.7	800	3000
16	Analog B signal input	2.7	2.7	800	3000
17	RGB(image and message circuit) power supply	9.0	9.0	450	600
18	R signal output	3.0	3.0	760	1500
19	G signal output	3.0	3.0	760	1500
20	B signal output	3.0	3.0	720	1400
21	ABCL control pin	5.6	5.6	820	2000
22	Field sawtooth wave forming	4.1	4.1	750	2000
23	Field feedback signal	5.0	5.0	820	2000
24	Field driving signal output	0.9	0.9	720	900
25	Field AGC	1.8	1.8	800	2000
26	Bus clock signal	5.0	5.0	720	15000
27	Bus data signal	5.0	5.0	720	15000
28	Deflection circuit power supply	9.0	9.0	450	600
29	PAL/NTSC identification signal output SECAM identification signal input	1.5	1.5	800	2000
30	Line feedback pulse input	0.6	0.6	780	2000
31	Composite synchronizing pulse signal output	4.5	4.5	780	2000
32	Line driving signal	2.7	2.7	640	680
33	Deflection circuit grounding pin	0	0	0	0
34	Sandcastle pulse input	1.5	1.5	820	2000
35	Video switching signal output	3.1	3.1	750	1200
36	Digital circuit power supply	5.0	5.0	470	800

## Circuit Explanation

1

Pin	Function	Reference Voltage(V)		Reference Resistance(KΩ )	
		Without signal	With signal	Forward(Ω)	Backward(Ω)
37	SECAM B-Y signal input	2.4	2.4	800	2000
38	SECAM R-Y signal input	2.4	2.4	800	2000
39	Y signal input	3.1	3.1	800	3600
40	Line AFC filtering	6.6	6.6	800	2000
41	External video/Y signal input	1.6	1.6	800	2000
42	Digital circuit grounding	0	0	0	0
43	PIF composite video signal input	3.3	3.3	800	2000
44	Black level detection filtering	2.3	2.3	800	4000
45	External chrominance signal input	2.9	2.9	800	2000
46	Y/C circuit power supply	5.0	5.0	500	1200
47	PIF and SIF composite signal output	3.8	3.8	680	900
48	Intermediate frequency locked phase loop filtering	4.7	4.7	800	2000
49	VCO and SIF grounding	0	0	0	0
50	Intermediate frequency VCO	8.1	8.1	550	1000
51	Intermediate frequency VCO	8.1	8.1	650	1000
52	VCO and SIF power supply	9.0	9.0	450	600
53	SIF signal input and horizontal curve correction	4.5	4.5	820	2000
54	SIF smooth filtering	5.6	5.6	800	1300
55	External audio input	4.2	4.2	800	2000
56	FM DC negative feedback	3.5	3.5	800	2000

N901

TMP87CK38N(87CM38N)

Pin	Function	Reference Voltage(V)		Reference Resistance	
		Without signal	With signal	Forward(Ω)	Backward(Ω)
1	Power supply grounding	0	0	0	0
2	Tuning voltage output	*	*	700	8000
3	Vacant pin	5.0	5.0	700	8000
4	Mute	5.0	0	700	8000
5	External mute	5.0	0	700	8000
6	Vacant pin	0	0	700	8000
7	Standby power supply	2.0	2.0	700	8000
8	Vacant pin	1~4.2	1~4.2	700	8000
9	Band 1	0~4.8	0~4.8	700	3500
10	Band 2	0~1.7	0~1.7	700	3000
11	Clock bus control	5.0	5.0	700	15000
12	Digit bus control	5.0	5.0	600	15000
13	AFC input	2.3	2.3	700	3000
14	Karaoke switch	0	0	600	10000
15	Keyboard matrix input	4.0	4.0	700	10000

## Circuit Explanation

1

Pin	Function	Reference Voltage(V)		Reference Resistance	
		Without signal	With signal	Forward( $\Omega$ )	Backward( $\Omega$ )
16	Keyboard matrix input	4.0	4.0	680	10000
17	Vacant pin	0	0	700	10000
18	Vacant pin	0	0	700	10000
19	Vacant pin	0	0	620	10000
20	Vacant pin	0	0	620	10000
21	Grounding	0	0	0	0
22	Red primary color character output	0	0	620	2200

## Circuit Explanation

1

Pin	Function	Reference Voltage(V)		Reference Resistance	
		Without signal	With signal	Forward( $\Omega$ )	Backward( $\Omega$ )
23	Green primary color character output	0	0	620	2200
24	Blue primary color character output	0	0	620	2200
25	Character blanking	0	0	620	2200
26	Line flyback	4.0	4.0	680	10000
27	Field flyback	4.8	4.8	680	10000
28	Character oscillating	5.0	5.0	600	10000
29	Character oscillating	5.0	5.0	0	10000
30	Grounding	0	0	0	0
31	CPU clock	2.1	2.1	700	10000
32	CPU clock	2.1	2.1	700	10000
33	CPU reset	5.0	5.0	650	40000
34	Vacant pin	5.0	5.0	700	10000
35	Infrared receiving input	5.0	5.0	700	10000
36	Line synchronizing signal input	4.7	4.7	700	10000
37	Clock bus control	2.9	2.9	700	10000
38	Data bus control	3.2	3.2	700	10000
39	Vacant pin	0	0	700	10000
40	Vacant pin	4.6	4.6	700	10000
41	Vacant pin	0	0	700	10000
42	Power supply	5.0	5.0	420	2700

**N101**

**LA7910**

Pin	Function	Reference Voltage(V)	Reference Resistance	
		Without signal	Forward( $K\Omega$ )	Backward( $K\Omega$ )
1	Output (BU)	1.7	120	7.2
2	Output (BH)	12.6	17.5	7.5
3	Control input	4.8	6.5	8.5
4	Control input	0	6.5	9.0
5	Grounding terminal	0	0	0
6	Power input terminal 1	14.0	6.0	50
7	Output (BL)	0	1.5	1.5
8	Vacant pin	0		8.5
9	Power input terminal 2	12	0.5	0.5

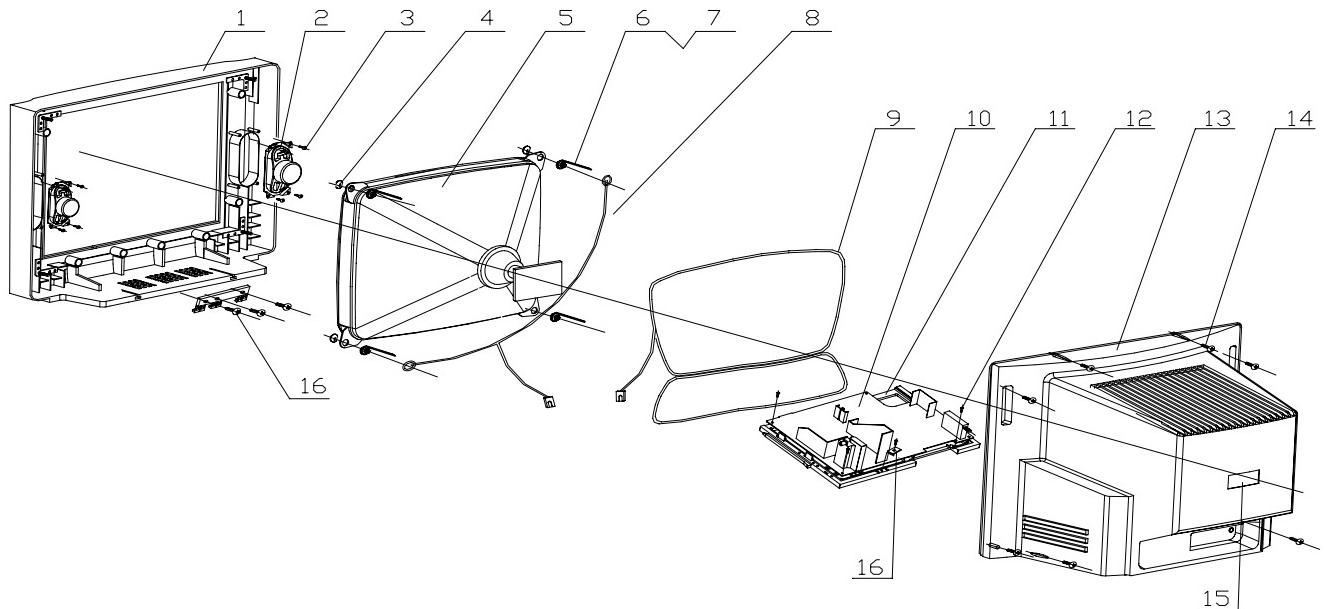
## **13. Adjustment**

The chassis of this TV set uses Toshiba IC with the latest digital bus processing technology. The adjustment points are fewer and the adjustment is simpler. The adjustment method is as follows:

- 1) +B:  $109\pm0.3V$  adjustment.
  - A) Switch on the power and connect PAL circular signals to the tuner.
  - B) Adjust variable resistor RP501 until the voltage of the main power is  $109\pm0.3V$ .
- 2) Screen voltage adjustment.
  - A) Switch on the power and receive PAL system circular signal. Warm up the TV set for 15 min.
  - B) Enter the adjustment D state. Press the “-/-” button, then a bright horizontal line appears. Adjust screen potentiometer to let the horizontal line just appears.
- 3) Focus adjustment.
  - A) Receive electronic circular signal.
  - B) Set picture mode on standard mode.
  - C) Adjust focus potentiometer until the optimum picture is achieved.
- 4) White balance adjustment.
  - A) Set the picture mode on standard mode.
  - B) Enter the Factory state and adjust WPR, WPG, WPB, RED and GRN.
  - C) Coordinate of reference white color: (X=0.281, Y=0.311).
- 5) Adjustment of horizontal and vertical position and size.
  - A) Switch on the power and connect the signals to the tuner to receive PAL/NTSC system circular signal.
  - B) Enter the Factory state. Adjust 5HSH to change the horizontal position and 5VAM to change the vertical position. Adjust 5VSH to change the vertical size until the vertical size is 90-92%. Horizontal size is related to the capacitor C906. Hold the horizontal size is 90-92%.
- 6) Adjustment of character positions  
Adjust OSD for the horizontal positions of the screen menu.

## 14. Exploded View

HT-2180 EXPLODED VIEW



## HT-2180 PARTS LIST

Serial Number	Name	Part Code	Specification	Quantity
1	FRONT MASK	0090200309	MTAA5013AA---	1
2	SPEAKER	0094000221	YDT613-4W-16Ω	2
3	SCREW	0090600023	SJ2824-87 ST4*16F	8
4	RUBBER WASHER	0090200076	1mm	4
5	CRT	0094004661	54SX503Y22-DC01	1
6	DEGAUSSING COIL CLIP	0090800171	BJZ0001-----	4
7	COMBINED NUT	0090600069	M6	4
8	CRT GROUND AS.	0090400232	JE221-02-4---	1
9	DEGAUSSING COIL	0094500875	HXC-54	1
10	MAIN -BOARD	0094002328	BXA5096---J--	1
11	BRACKET	0090200419	MTAC5002AC---	1
12	SCREW	0090600075	SJ2825-87 ST3*10F	4
13	BACK COVER	0090200262	MTAA0097AC---	1
14	SCREW	0090600014	SJ2824-87 ST4*20F	8
15	LABEL	0090202207	MTFB5223CA---	1
16	BLOCK	0090201452	MTAH5010AA---	1

## List of Parts

1

### 15. List of Parts

Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
	0090300076	Rubber washer	1mm φ6.5	4	
	0090800171	Degaussing coil tie	BJZ0001----Q	4	
	0090100122	Washer	1MM φ8.5	4	
	0090501291	plastic bag	240*160	1	
	0090600069	combined nut	M6 (98025)	4	
	0094000222	CRT	54SX503Y22-DC01	1	
W1002	0090400240	Wire	JG4401-610--Q	1	
W1004	0090400238	Wire	JT2481-B0035Q	1	
W1005	0090400362	Wire	JA2811-B----Q	1	
	0094500443	Degaussing coil	HXC-54	1	
	0090400194	CRT grounding assembly	JE221-02-4--Q	1	
	0090202267	Back label	MTFB5235CA--Q	1	
	0090600020	Screw	SJ2825-87 ST3*12F	2	
	0090600014	Screw	SJ2824-87 ST4*20F	8	
	0090200480	Mains-cord hoke	MTAJ5002AG--Q	1	
	0090200247	Clamp	TMMOA101	1	
	0090801724	Front mask assembly	BJK5044----Q	1	
	0090202269	Front mask	MTAA5075AC--Q	1	
	0090600023	Screw	SJ2824-87 ST4*16F	8	
	0090600034	Screw	SJ2824-87 ST3*12F	5	
	0094000221	speaker	YDT613-4W-16Ω	2	
	0090801684	Back cover assembly	BJH5033----Q	1	
	0090200262	Back cover	MTAA0097AC--Q	1	
	0090200264	PVC cover	MTAH0057AJ--Q	1	
	0090300079	Cloth	15*200	2	
	0090300080	Cloth	15*320	2	
	0090200265	Mains cord clamp	MTAJ0015AG--Q	1	
	0090500102	Plastic cover	21"	1	
	0090501814	Carton	MTED5181CA--Q	1	
	0090500189	Top pad	MTEE0073AK--Q	1	
	0090500190	Bottom pad	MTEE0074AK--Q	1	
	0090100165	Staple	65*2	8	
	0090500094	Accessory poke	270*180	1	
	0090501815	Operating instructions	MTDB5330CA--Q	1	
	0094000299	battery	5#	2	
	0094000809	Remote controller	HYF-30A	1	
	0091800099	PCB	PX10086A---Q	1	
	0091800100	PCB	PX10087A---Q	1	
R444	0094101020	Resister	RT13-1/6W-4.7Ω±5%----T	1	
R704	0094101020	Resister	RT13-1/6W-4.7Ω±5%----T	1	
R279	0094100797	Resister	RT13-1/6W-33Ω±5%----T	1	
R602	0094100797	Resister	RT13-1/6W-33Ω±5%----T	1	
R612	0094100797	Resister	RT13-1/6W-33Ω±5%----T	1	
R622	0094100797	Resister	RT13-1/6W-33Ω±5%----T	1	
R218	0094100805	Resister	RT13-1/6W-68Ω±5%----T	1	
R106	0094100017	Resister	RT13-1/6W-100Ω±5%----T	1	
R201	0094100017	Resister	RT13-1/6W-100Ω±5%----T	1	
R203	0094100017	Resister	RT13-1/6W-100Ω±5%----T	1	

# List of Parts

1

Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
R207	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R216	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R217	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R219	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R221	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R232	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R236	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R238	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R702	0094100017	Resister	RT13-1/6W-100Ω±5%-----T	1		
R111	0094100802	Resister	RT13-1/6W-150Ω±5%-----T	1		
R404	0094100802	Resister	RT13-1/6W-150Ω±5%-----T	1		
R107	0094100019	Resister	RT13-1/6W-220Ω±5%-----T	1		
R234	0094100019	Resister	RT13-1/6W-220Ω±5%-----T	1		
R215	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R264	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R265	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R271	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R272	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R273	0094100795	Resister	RT13-1/6W-270Ω±5%-----T	1		
R604	0094100020	Resister	RT13-1/6W-470Ω±5%-----T	1		
R614	0094100020	Resister	RT13-1/6W-470Ω±5%-----T	1		
R624	0094100020	Resister	RT13-1/6W-470Ω±5%-----T	1		
R243	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R244	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R403	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R601	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R611	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R621	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R703	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R937	0094100021	Resister	RT13-1/6W-560Ω±5%-----T	1		
R115	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R206	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R233	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R235	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R251	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R252	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R423	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R635	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R907	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R908	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R912	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R945	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R957	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R958	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R973	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R979	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R985	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R986	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R987	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		
R988	0094100023	Resister	RT13-1/6W-1KΩ±5%-----T	1		

# List of Parts

1

Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
R517	0094100753	Resister	RT13-1/6W-1.2KΩ±5%-----T	1	
R603	0094100753	Resister	RT13-1/6W-1.2KΩ±5%-----T	1	
R613	0094100753	Resister	RT13-1/6W-1.2KΩ±5%-----T	1	
R623	0094100753	Resister	RT13-1/6W-1.2KΩ±5%-----T	1	
R633	0094100753	Resister	RT13-1/6W-1.2KΩ±5%-----T	1	
R211	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R274	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R275	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R276	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R277	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R932	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R934	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
W913	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
W914	0094100025	Resister	RT13-1/6W-1.5kΩ±5%-----T	1	
R523	0094100026	Resister	RT13-1/6W-2.2KΩ±5%-----T	1	
R637	0094100026	Resister	RT13-1/6W-2.2KΩ±5%-----T	1	
R559	0094100028	Resister	RT13-1/6W-3.3KΩ±5%-----T	1	
R925	0094100028	Resister	RT13-1/6W-3.3KΩ±5%-----T	1	
R108	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R202	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R639	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R922	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R938	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R989	0094100029	Resister	RT13-1/6W-4.7KΩ±5%-----T	1	
R213	0094100721	Resister	RT13-1/6W-5.6KΩ±5%-----T	1	
R263	0094100721	Resister	RT13-1/6W-5.6KΩ±5%-----T	1	
R511	0094100721	Resister	RT13-1/6W-5.6KΩ±5%-----T	1	
R905	0094100721	Resister	RT13-1/6W-5.6KΩ±5%-----T	1	
R906	0094100721	Resister	RT13-1/6W-5.6KΩ±5%-----T	1	
R253	0094100031	Resister	RT13-1/6W-6.8KΩ±5%-----T	1	
R933	0094100031	Resister	RT13-1/6W-6.8KΩ±5%-----T	1	
R208	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R214	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R258	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R292	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R293	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R562	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R705	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R902	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R917	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R926	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R927	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R931	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R935	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R951	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R952	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R955	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R956	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R976	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R977	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
R991	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R992	0094100033	Resister	RT13-1/6W-10KΩ±5%-----T	1	
R102	0094100034	Resister	RT13-1/6W-15KΩ±5%-----T	1	
R212	0094100034	Resister	RT13-1/6W-15KΩ±5%-----T	1	
R294	0094100034	Resister	RT13-1/6W-15KΩ±5%-----T	1	
R634	0094100034	Resister	RT13-1/6W-15KΩ±5%-----T	1	
R929	0094100034	Resister	RT13-1/6W-15KΩ±5%-----T	1	
R515	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R551	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R940	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R967	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R968	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R969	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R990	0094100779	Resister	RT13-1/6W-22kΩ±5%-----T	1	
R260	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R278	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R447	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R914	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R960	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R965	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R974	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R975	0094100036	Resister	RT13-1/6W-33kΩ±5%-----T	1	
R103	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R104	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R256	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R900	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R930	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R970	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R981	0094100800	Resister	RT13-1/6W-47kΩ±5%-----T	1	
R446	0094100038	Resister	RT13-1/6W-56KΩ±5%-----T	1	
R448	0094100038	Resister	RT13-1/6W-56KΩ±5%-----T	1	
R105	0094100039	Resister	RT13-1/6W-68KΩ±5%-----T	1	
R443	0094101024	Resister	RT13-1/6W-120KΩ±5%-----T	1	
R204	0094100077	Resister	RT13-1/6W-100KΩ±5%-----T	1	
R205	0094100077	Resister	RT13-1/6W-100KΩ±5%-----T	1	
R101	0094100917	Resister	RT13-1/6W-220KΩ±5%-----T	1	
R262	0094100944	Resister	RT13-1/6W-390KΩ±5%-----T	1	
R237	0094100732	Resister	RT13-1/6W-820KΩ±5%-----T	1	
R632	0094100946	Resister	RT14-1/4W-33Ω±5%-----T	1	
R638	0094100946	Resister	RT14-1/4W-33Ω±5%-----T	1	
R519	0094100946	Resister	RT14-1/4W-33Ω±5%-----T	1	
R261	0094100990	Resister	RT14-1/4W-220Ω±5%-----T	1	
R901	0094100991	Resister	RT14-1/4W-470Ω±5%-----T	1	
R903	0094100991	Resister	RT14-1/4W-470Ω±5%-----T	1	
R944	0094101288	Resister	RT14-1/4W-680Ω±5%-----T	1	
R255	0094100992	Resister	RT14-1/4W-2.2KΩ±5%-----T	1	
R441	0094100992	Resister	RT14-1/4W-2.2KΩ±5%-----T	1	
R526	0094101092	Resister	RT14-1/4W-2.7KΩ±5%-----T	1	
R557	0094100993	Resister	RT14-1/4W-4.7KΩ±5%-----T	1	
R424	0094100994	Resister	RT14-1/4W-15kΩ±5%-----T	1	

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
R522	0094100994	Resister	RT14-1/4W-15kΩ±5%-----T	1	
R566	0094100996	Resister	RT14-1/4W-100KΩ±5%-----T	1	
R554	0094100997	Resister	RT14-1/4W-150KΩ±5%-----T	1	
R442	0094100999	Resister	RT15-1/2W-330Ω±5%-----T	1	
R407	0094101000	Resister	RT15-1/2W-1KΩ±5%-----T	1	
R451	0094101001	Resister	RT15-1/2W-2.7KΩ±5%-----T	1	
R560	0094101002	Resister	RT15-1/2W-3.3KΩ±5%-----T	1	
R462	0094101003	Resister	RT15-1/2W-6.8KΩ±5%-----T	1	
R552	0094100954	Resister	RT15-1/2W-47KΩ±5%-----T	1	
R555	0094100954	Resister	RT15-1/2W-47KΩ±5%-----T	1	
R556	0094100954	Resister	RT15-1/2W-47KΩ±5%-----T	1	
R415	0094100956	Resister	RT15-1/2W-220KΩ±5%-----T	1	
R501	0094100956	Resister	RT15-1/2W-220KΩ±5%-----T	1	
R561	0094100956	Resister	RT15-1/2W-220KΩ±5%-----T	1	
R605	0094101005	Resister	RS11-1/2W-3.3KΩ±10%-----T	1	
R615	0094101005	Resister	RS11-1/2W-3.3KΩ±10%-----T	1	
R625	0094101005	Resister	RS11-1/2W-3.3KΩ±10%-----T	1	
R520	0094101301	Resister	RS11-1/2W-100KΩ±10%-----T	1	
R521	0094101301	Resister	RS11-1/2W-100KΩ±10%-----T	1	
R531	0094101090	Resister	RS11-1/2W-12MΩ±20%-----T	1	
R532	0094101090	Resister	RS11-1/2W-12MΩ±20%-----T	1	
C926	0094201349	Capacitor	CC1-05-RH-63V-22pF-J-----F	1	
C214	0094201088	Capacitor	CC1-08-CH-63V-100pF-J-----F	1	
C232	0094201088	Capacitor	CC1-08-CH-63V-100pF-J-----F	1	
C236	0094201088	Capacitor	CC1-08-CH-63V-100pF-J-----F	1	
C257	0094201088	Capacitor	CC1-08-CH-63V-100pF-J-----F	1	
C951	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C952	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C953	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C954	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C971	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C972	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C974	0094200979	Capacitor	CT1-05-2B4-63V-220pF-K-----F	1	
C601	0094200977	Capacitor	CT1-05-2B4-63V-390PF-K-----F	1	
C611	0094200977	Capacitor	CT1-05-2B4-63V-390PF-K-----F	1	
C621	0094200977	Capacitor	CT1-05-2B4-63V-390PF-K-----F	1	
C201	0094200981	Capacitor	CT1-06-2B4-63V-1000pF-K-----F	1	
C446	0094200981	Capacitor	CT1-06-2B4-63V-1000pF-K-----F	1	
C934	0094200981	Capacitor	CT1-06-2B4-63V-1000pF-K-----F	1	
C269	0094201038	Capacitor	CT1-06-2B4-63V-1800PF-K-----F	1	
C447	0094201038	Capacitor	CT1-06-2B4-63V-1800PF-K-----F	1	
C551	0094201038	Capacitor	CT1-06-2B4-63V-1800PF-K-----F	1	
C112	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C113	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C114	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C202	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C217	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C221	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C237	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C251	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
C225	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C226	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C258	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C260	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C296	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C297	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C262	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C266	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C273	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C281	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C633	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C921	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C923	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C929	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C933	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C995	0094201040	Capacitor	CT1-08-2F4-63V-0.01μF-Z-----F	1	
C402	0094201237	Capacitor	CT1-10-2B4-500V-1000pF-K-----F	1	
C403	0094201238	Capacitor	CT1-14-2B4-500V-3900pF-K-----F	1	
C450	0094201238	Capacitor	CT1-14-2B4-500V-3900pF-K-----F	1	
C215	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C216	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C298	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C632	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C975	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C976	0094200008	Capacitor	CD110-16V-10μF-M-----F	1	
C205	0094200476	Capacitor	CD110X-16V-22μF-M-----F	1	
C206	0094200476	Capacitor	CD110X-16V-22μF-M-----F	1	
C107	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C203	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C219	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C259	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C292	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C282	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C902	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C904	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C930	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C935	0094200469	Capacitor	CD110X-16V-47μF-M-----F	1	
C261	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C263	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C267	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C299	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C702	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C901	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C931	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C994	0094200433	Capacitor	CD110X-16V-100μF-M-----F	1	
C223	0094200862	Capacitor	CD110X-16V-470μF-M-----F	1	
C272	0094201046	Capacitor	CA42-25V-1μF-K-----F	1	
C279	0094201046	Capacitor	CA42-25V-1μF-K-----F	1	
C222	0094201113	Capacitor	CD110-25V-47μF-M-----F	1	
C704	0094200581	Capacitor	CD110X-25V-100μF-M-----F	1	

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
C430	0094200990	Capacitor	CD110-35V-47μF-M-----F	1	
C705	0094201243	Capacitor	CD110X-35V-100μF-M-----F	1	
C449	0094201243	Capacitor	CD110X-35V-100μF-M-----F	1	
C212	0094200042	Capacitor	CD110-50V-0.22μF-M-----F	1	
C271	0094200016	Capacitor	CD110-50V-0.47μF-M-----F	1	
C256	0094200043	Capacitor	CD110-50V-1μF-M-----F	1	
C291	0094200043	Capacitor	CD110-50V-1μF-M-----F	1	
C265	0094200043	Capacitor	CD110-50V-1μF-M-----F	1	
C103	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C104	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C105	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C106	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C443	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C700	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C701	0094200992	Capacitor	CD110-50V-4.7μF-M-----F	1	
C411	0094201045	Capacitor	CD110-160V-4.7μF-----F	1	
C278	0094200825	Capacitor	CL11-50V-2200PF-J-----F	1	
C204	0094201459	Capacitor	CL11-63V-1000pF-J-----F	1	
C111	0094201427	Capacitor	CL11-50V-0.012μF-K-----F	1	
C515	0094201427	Capacitor	CL11-50V-0.012μF-K-----F	1	
C517	0094200998	Capacitor	CL11-63V-0.022UF-K-----F	1	
C264	0094200998	Capacitor	CL11-63V-0.022UF-K-----F	1	
C274	0094201093	Capacitor	CL21X-50V-0.047μF-K-----F	1	
C275	0094201093	Capacitor	CL21X-50V-0.047μF-K-----F	1	
C276	0094201093	Capacitor	CL21X-50V-0.047μF-K-----F	1	
C238	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C252	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C253	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C254	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C255	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C444	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C991	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C992	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C413	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C707	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C514	0094200759	Capacitor	CL21X-50V-0.1μF-J-----F	1	
C277	0094201463	Capacitor	CL21X-63V-0.22μF-J-----F	1	
L232	0094500316	Inducer	LGA0307-4.7μH-K-----T	1	
L101	0094500284	Inducer	LGA0307-12μH±10%-----T	1	
L231	0094500284	Inducer	LGA0307-12μH±10%-----T	1	
L261	0094500284	Inducer	LGA0307-12μH±10%-----T	1	
L901	0094500284	Inducer	LGA0307-12μH±10%-----T	1	
L251	0094500268	Inducer	LGA0307-15μH±10%-----T	1	
L252	0094500268	Inducer	LGA0307-15μH±10%-----T	1	
L902	0094500286	Inducer	LGA0307-21μH±5%-----T	1	
VD514	0094400049	Diode	1N4148-----T	1	
VD516	0094400049	Diode	1N4148-----T	1	
VD518	0094400049	Diode	1N4148-----T	1	
VD601	0094400049	Diode	1N4148-----T	1	
VD611	0094400049	Diode	1N4148-----T	1	

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
VD621	0094400049	Diode	1N4148-----T	1		
VD630	0094400049	Diode	1N4148-----T	1		
VD631	0094400049	Diode	1N4148-----T	1		
VD902	0094400049	Diode	1N4148-----T	1		
VD904	0094400049	Diode	1N4148-----T	1		
VD924	0094400049	Diode	1N4148-----T	1		
VD971	0094400049	Diode	1N4148-----T	1		
VD972	0094400049	Diode	1N4148-----T	1		
R923	0094400049	Diode	1N4148-----T	1		
VD517	0094400328	Diode	ES1-----T	1		
VD552	0094400328	Diode	ES1-----T	1		
VD553	0094400329	Diode	EU2Z-----T	1		
VD557	0094400329	Diode	EU2Z-----T	1		
VD412	0094400329	Diode	EU2Z-----T	1		
VD433	0094400388	Diode	EM01Z-----T	1		
VD434	0094400388	Diode	EM01Z-----T	1		
VD555	0094400331	Diode	EU1C-----T	1		
VD554	0094400329	Diode	EU2Z-----T	1		
VD556	0094401113	Diode	RU3A-----T	1		
VD551	0094400358	Diode	RD6.2EB3-----T	1		
VD261	0094400359	Diode	RD5.1EB2-----T	1		
VD436	0094400359	Diode	RD5.1EB2-----T	1		
VD922	0094400359	Diode	RD5.1EB2-----T	1		
VD903	0094400360	Diode	RD10EB1-----T	1		
VD921	0094400394	Diode	RD3.6EL-----T	1		
VD901	0094400362	Diode	RD5.6EB3-----T	1		
VD519	0094400397	Diode	RD8.2EB3-----T	1		
V231	0094400460	Transistor	2SA1015(Y)-----F	1		
V251	0094400460	Transistor	2SA1015(Y)-----F	1		
V511	0094400460	Transistor	2SA1015(Y)-----F	1		
V631	0094400460	Transistor	2SA1015(Y)-----F	1		
V903	0094400460	Transistor	2SA1015(Y)-----F	1		
V925	0094400460	Transistor	2SA1015(Y)-----F	1		
V201	0094400461	Transistor	2SC1815(Y)-----F	1		
V211	0094400461	Transistor	2SC1815(Y)-----F	1		
V212	0094400461	Transistor	2SC1815(Y)-----F	1		
V551	0094400461	Transistor	2SC1815(Y)-----F	1		
V601	0094400461	Transistor	2SC1815(Y)-----F	1		
V611	0094400461	Transistor	2SC1815(Y)-----F	1		
V621	0094400461	Transistor	2SC1815(Y)-----F	1		
V922	0094400461	Transistor	2SC1815(Y)-----F	1		
V923	0094400461	Transistor	2SC1815(Y)-----F	1		
V924	0094400461	Transistor	2SC1815(Y)-----F	1		
V975	0094400461	Transistor	2SC1815(Y)-----F	1		
WC283	0094101102	Jumper	φ0.6mm/5mm-----B	1		
W412	0094101102	Jumper	φ0.6mm/5mm-----B	1		
W287	0094101102	Jumper	φ0.6mm/5mm-----B	1		
V261	0094101102	Jumper	φ0.6mm/5mm-----B	1		
V262	0094101102	Jumper	φ0.6mm/5mm-----B	1		
V263	0094101102	Jumper	φ0.6mm/5mm-----B	1		

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
WR295	0094101102	Jumper	φ0.6mm/5mm-----B	1		
W101	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W102	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W103	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W104	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W105	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W106	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W204	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W205	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W211	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W212	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W214	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W218	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W219	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W232	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W253	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W254	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W263	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W264	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W265	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W268	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W411	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W267	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W422	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W432	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W433	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W435	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W436	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W437	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W438	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W463	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W553	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W554	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W555	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W558	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W559	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W562	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W601	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W602	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W604	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W605	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W701	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W905	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W906	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W916	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W917	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W918	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W921	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W929	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		
W930	0094101103	Jumper	φ0.6mm/7.5mm-----B	1		

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
W931	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W932	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W933	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W953	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W954	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W955	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W956	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W957	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W958	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W959	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
WC422	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
WC416	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
WR971	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
WR972	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
WL411	0094101103	Jumper	φ0.6mm/7.5mm----B	1		
W207	0094101104	Jumper	φ0.6mm/10mm----B	1		
W220	0094101104	Jumper	φ0.6mm/10mm----B	1		
W221	0094101104	Jumper	φ0.6mm/10mm----B	1		
W222	0094101104	Jumper	φ0.6mm/10mm----B	1		
W223	0094101104	Jumper	φ0.6mm/10mm----B	1		
W225	0094101104	Jumper	φ0.6mm/10mm----B	1		
W231	0094101104	Jumper	φ0.6mm/10mm----B	1		
W238	0094101104	Jumper	φ0.6mm/10mm----B	1		
W251	0094101104	Jumper	φ0.6mm/10mm----B	1		
W260	0094101104	Jumper	φ0.6mm/10mm----B	1		
W266	0094101104	Jumper	φ0.6mm/10mm----B	1		
W285	0094101104	Jumper	φ0.6mm/10mm----B	1		
W289	0094101104	Jumper	φ0.6mm/10mm----B	1		
W413	0094101104	Jumper	φ0.6mm/10mm----B	1		
W430	0094101104	Jumper	φ0.6mm/10mm----B	1		
W440	0094101104	Jumper	φ0.6mm/10mm----B	1		
W504	0094101104	Jumper	φ0.6mm/10mm----B	1		
W556	0094101104	Jumper	φ0.6mm/10mm----B	1		
W560	0094101104	Jumper	φ0.6mm/10mm----B	1		
W606	0094101104	Jumper	φ0.6mm/10mm----B	1		
W904	0094101104	Jumper	φ0.6mm/10mm----B	1		
W908	0094101104	Jumper	φ0.6mm/10mm----B	1		
W910	0094101104	Jumper	φ0.6mm/10mm----B	1		
W915	0094101104	Jumper	φ0.6mm/10mm----B	1		
W922	0094101104	Jumper	φ0.6mm/10mm----B	1		
W927	0094101104	Jumper	φ0.6mm/10mm----B	1		
W928	0094101104	Jumper	φ0.6mm/10mm----B	1		
W951	0094101104	Jumper	φ0.6mm/10mm----B	1		
W952	0094101104	Jumper	φ0.6mm/10mm----B	1		
W980	0094101104	Jumper	φ0.6mm/10mm----B	1		
WL201	0094101104	Jumper	φ0.6mm/10mm----B	1		
WL202	0094101104	Jumper	φ0.6mm/10mm----B	1		
WL262	0094101104	Jumper	φ0.6mm/10mm----B	1		
WL510	0094101104	Jumper	φ0.6mm/10mm----B	1		
WL601	0094101104	Jumper	φ0.6mm/10mm----B	1		

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
WL941	0094101104	Jumper	φ0.6mm/10mm----B	1		
WR921	0094101104	Jumper	φ0.6mm/10mm----B	1		
WR978	0094101104	Jumper	φ0.6mm/10mm----B	1		
W234	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W236	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W261	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W603	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W900	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W902	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W907	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W923	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W924	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W925	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W926	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W981	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W982	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W983	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W984	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
WR250	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
WR570	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
WR916	0094101105	Jumper	φ0.6mm/12.5mm----B	1		
W224	0094101106	Jumper	φ0.6mm/15mm----B	1		
W235	0094101106	Jumper	φ0.6mm/15mm----B	1		
W286	0094101106	Jumper	φ0.6mm/15mm----B	1		
W503	0094101106	Jumper	φ0.6mm/15mm----B	1		
W901	0094101106	Jumper	φ0.6mm/15mm----B	1		
W911	0094101106	Jumper	φ0.6mm/15mm----B	1		
W912	0094101106	Jumper	φ0.6mm/15mm----B	1		
WR412	0094101106	Jumper	φ0.6mm/15mm----B	1		
WR569	0094101106	Jumper	φ0.6mm/15mm----B	1		
WR911	0094101106	Jumper	φ0.6mm/15mm----B	1		
WR411	0094101106	Jumper	φ0.6mm/15mm----B	1		
W903	0094101150	Jumper	φ0.6mm/20mm----B	1		
VD503(2)	0090100079	Rivet	φ1.6mm*3.0mm	2		
VD504(2)	0090100079	Rivet	φ1.6mm*3.0mm	2		
VD505(2)	0090100079	Rivet	φ1.6mm*3.0mm	2		
VD506(2)	0090100079	Rivet	φ1.6mm*3.0mm	2		
T501(6)	0090100079	Rivet	φ1.6mm*3.0mm	6		
T402(5)	0090100079	Rivet	φ1.6mm*3.0mm	5		
L414(3)	0090100079	Rivet	φ1.6mm*3.0mm	3		
PS501(3)	0090100079	Rivet	φ1.6mm*3.0mm	3		
V513(5)	0090100078	Rivet	φ2.3mm*3.0mm	5		
V411(5)	0090100078	Rivet	φ2.3mm*3.0mm	5		
C507(2)	0090100078	Rivet	φ2.3mm*3.0mm	2		
R502(2)	0090100078	Rivet	φ2.3mm*3.0mm	2		
R550	0094101006	Resister	RF10-1W-1Ω±5%-15-C-A	1		
R558	0094101006	Resister	RF10-1W-1Ω±5%-15-C-A	1		
R910	0094101290	Resister	RF10-1W-1Ω±5%-17-C-A	1		
R630	0094101295	Resister	RF10-2W-3.9Ω±5%-20-C-A	1		
R445	0094101010	Resister	RY16-1W-1.8Ω±5%-15-C-A	1		

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
R413	0094101291	Resister	RY16-1W-1KΩ±5%-12-C-A	1		
R525	0094100972	Resister	RY17-2W-68Ω±5%-20-C-A	1		
R437	0094100719	Resister	RY17-2W-270Ω±5%-20-C-A	1		
R939	0094100719	Resister	RY17-2W-270Ω±5%-20-C-A	1		
R553	0094101011	Resister	RY17-2W-12KΩ±5%-20-C-A	1		
R563	0094101011	Resister	RY17-2W-12KΩ±5%-20-C-A	1		
R606	0094101011	Resister	RY17-2W-12KΩ±5%-20-C-A	1		
R616	0094101011	Resister	RY17-2W-12KΩ±5%-20-C-A	1		
R626	0094101011	Resister	RY17-2W-12KΩ±5%-20-C-A	1		
R904	0094101292	Resister	RY18-3W-27Ω±5%-30-C-A	1		
R936	0094101012	Resister	RY18-3W-27Ω±5%-25-C-A	1		
R524	0094101296	Resister	RX27-3A-6W-27Ω±5%	1		
R502	0094101297	Resister	RX27-3A-6W-1.8Ω±5%	1		
R414	0094101294	Resister	RX27-3A-6W-10Ω±10%	1		
PS501	0094400296	Resister	MZ73L18RM270	1		
RP551	0094100979	Varistor	W206-2AL-2kΩ	1		
C925	0094201771	Capacitor	CC1-06-CH-63V-22PF-05-C-A	1		
C924	0094201369	Capacitor	CC1-08-CH-63V-120PF-J-07-C-A	1		
C213	0094201370	Capacitor	CT1-05-2B4-63V-220PF-K-05-C-A	1		
C915	0094201721	Capacitor	CT1-05-2B4-63V-270PF-K-15-C-A	1		
C448	0094201371	Capacitor	CT1-06-2B4-63V-560PF-K-05-C-A	1		
C270	0094201259	Capacitor	CT1-08-2F4-63V-0.01μF-K-05-C-A	1		
C503	0094201372	Capacitor	CT81-10-2B4-1KV-1000PF-K-10-C-A	1		
C504	0094201372	Capacitor	CT81-10-2B4-1KV-1000PF-K-10-C-A	1		
C505	0094201372	Capacitor	CT81-10-2B4-1KV-1000PF-K-10-C-A	1		
C506	0094201372	Capacitor	CT81-10-2B4-1KV-1000PF-K-10-C-A	1		
C553	0094201055	Capacitor	CT81-10B-2B4-1KV-470PF-K-07-C-A	1		
C554	0094201055	Capacitor	CT81-10B-2B4-1KV-470PF-K-07-C-A	1		
C555	0094201055	Capacitor	CT81-10B-2B4-1KV-470PF-K-07-C-A	1		
C560	0094201055	Capacitor	CT81-10B-2B4-1KV-470PF-K-07-C-A	1		
C630	0094201061	Capacitor	CT81-10B-2B4-2KV-2200PF-K-10-C-A	1		
C556	0094201056	Capacitor	CT81-10B-2B4-2KV-220PF-K-07-C-A	1		
AW414	0094201217	Capacitor	CT81-10-2B4-2KV-470PF-K-07-C-A	1		
C516	0094201373	Capacitor	CT81-10-2B4-2KV-680PF-K-07-C-A	1		
VD415	0094201722	Capacitor	CT81-10-2B4-2KV-470PF-K-20-J-A	1		
C534	0094200841	Capacitor	DE0910B471K-KX-10-C-A	1		
C535	0094200840	Capacitor	DE0910E102M-KX-10-C-A	1		
C207	0094202149	Capacitor	CD110-16V-10μF-M-05-F-A	1		
C218	0094201375	Capacitor	CD110-16V-22μF-M-05-F-A	1		
C235	0094201376	Capacitor	CD110-16V-100μF-M-07-F-A	1		
C932	0094200937	Capacitor	CD265-16V-470μF-M-05-G-A	1		
C706	0094201009	Capacitor	CD110-25V-470μF-M-05-E-A	1		
C433	0094201011	Capacitor	CD110-25V-1000μF-M-05-E-A	1		
C552	0094201011	Capacitor	CD110-25V-1000μF-M-05-E-A	1		
C557	0094201011	Capacitor	CD110-25V-1000μF-M-05-E-A	1		
C559	0094201065	Capacitor	CD110-35V-330μF-M-05-E-A	1		
C565	0094201016	Capacitor	CD110-35V-1000μF-M-05-E-A	1		
C231	0094201066	Capacitor	CD110-50V-0.47μF-M-05-F-A	1		
C973	0094201287	Capacitor	CD110-50V-2.2μF-M-05-F-A	1		
C421	0094201377	Capacitor	CD71-50V-4.7μF-M-05-F-A	1		

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
C101	0094201251	Capacitor	CD110-50V-4.7μF-M-05-F-A	1		
C563	0094201389	Capacitor	CD288-160V-330μF-M-05-E-A	1		
C562	0094202156	Capacitor	CD287-250V-22μF-M-05-E-A	1		
C507	0094201723	Capacitor	CD293-450V-150μF-M-10-G-A	1		
C703	0094201379	Capacitor	CL11-50V-4700PF-J-05-C-A	1		
C414	0094201380	Capacitor	CL21X-50V-0.47μF-K-07-C-A	1		
C445	0094201381	Capacitor	CL21X-50V-0.047μF-K-05-C-A	1		
C102	0094201104	Capacitor	CL21X-50V-0.1μF-F5-K-05-C-A	1		
C412	0094201665	Capacitor	CBB21-400V-0.39μF-J-20-B-A	1		
C501	0094201120	Capacitor	CL21-AC250V-0.22μF-K-20-B-A	1		
C502	0094201120	Capacitor	CL21-AC250V-0.22μF-K-20-B-A	1		
C415	0094201384	Capacitor	CBB81-1600V-7500PF-J-20-B-A	1		
L412	0094500325	Inducer	ZZ0008-15-A-A	1		
L414	0094500376	Inducer	LX038	1		
T101	0094500394	Inducer	A-TL13	1		
T211	0094500377	Inducer	A-TX17	1		
VD515	0094400036	photo coupler	PC817B	1		
VD503	0094400474	Diode	RM11C-15-V--	1		
VD504	0094400474	Diode	RM11C-15-V--	1		
VD505	0094400474	Diode	RM11C-15-V--	1		
VD506	0094400474	Diode	RM11C-15-V--	1		
D902	0094400636	IC	CAT24C08P	1		
N101	0094400314	IC	LA7910	1		
D901	0094400869	IC	87CM38N-3D27(V2.0)	1		
N201	0094400343	IC	TB1238AN	1		
N202	0094400138	IC	TC4052BP	1		
N251	0094400757	IC	TA1275AZ	1		
N904	0094400437	Diode	UPC574J	1		
V921	0094400441	Transistor	2SB764(E)----D-A	1		
V552	0094400442	Transistor	2SB892(S)----D-A	1		
V101	0094400660	Transistor	2SC2216(O)-----F	1		
V444	0094400446	Transistor	2SC2383(O)----D-A	1		
V602	0094400569	Transistor	2SC2688(K)----E-A	1		
V612	0094400569	Transistor	2SC2688(K)----E-A	1		
V622	0094400569	Transistor	2SC2688(K)----E-A	1		
V512	0094400539	Transistor	2SC3807(R)----B-A	1		
V901	0094400561	Transistor	2SD400(D)----D-A	1		
V902	0094400561	Transistor	2SD400(D)----D-A	1		
V701	0094400552	Transistor	2SC536(E)----D-A	1		
W284	0094101205	Jumper	φ0.6mm/5mm-----A	1		
Z101	0094600082	Filter	D38.9	1		
Z231	0094600081	Filter	LT5.5MHZ	1		
Z232	0094600092	Filter	LT6.5MHz	1		
Z237	0094600084	Filter	XT5.5MHZ	1		
Z235	0094600083	Filter	XT6.5MHZ	1		
F501	0094000150	Fuse	T2.5A/250V	1		
A101	0094000444	Tuner	TDQ-3B6HR-IEC-38.9	1		
Z900	0094600078	Oscillator	8.0MHZ	1		
Z280	0094600067	Oscillator	JA18B-4.43MHz	1		
XZ412	0090400242	Wire	JT4371-C0056Q	1		

# List of Parts

1

Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark	
XS261	0090400243	Wire	JT5391-C0058Q	1		
XZ601	0094300121	CRT Socket	GZS8-6-5A	1		
TP101	0094300026	Connect housing	TJC2-1A	1		
TP202	0094300026	Connect housing	TJC2-1A	1		
TP201	0094300026	Connect housing	TJC2-1A	1		
TP601	0094300026	Connect housing	TJC2-1A	1		
XZ500	0094300063	Connect housing	TJC2-2A	1		
TP421,2	0094300063	Connect housing	TJC2-2A	1		
TP602,3	0094300063	Connect housing	TJC2-2A	1		
XZ411	0094300084	Connect housing	TJC2-5A-4	1		
XZ701	0094300062	Connect housing	TJC9-2A	1		
XS201	0094300027	Connect housing	TJC9-3A	1		
XZ901	0094300027	Connect housing	TJC9-3A	1		
	0094300110	Connect housing	TJC1-2A	1		
L502	0094500384	Filter	LCL-05	1		
L503	0094500384	Filter	LCL-05	1		
T402	0094500347	Transformer	BSC25-0206	1		
T501	0094500379	Transformer	BCK-08A6	1		
T401	0094500426	Transformer	BCT-02	1		
F501a	0090100037	Fuser holder	MTBJ0001BB--Q	1		
F501b	0090100037	Fuser holder	MTBJ0001BB--Q	1		
XS212	0094300096	Connect housing	AV6-8.4-8B	1		
XS203	0094300097	S-Video terminal	S-8	1		
	0090200119	LED holder	MTAJ0003AG--Q	1		
VD923	0094400282	Diode	BT205-L	1		
A901	0094000216	Infrared sensor	HS0038	1		
SW501	0094000207	Power switch	KDC-A05-8A	1		
	0090400441	Mains cord	JPRVVZ202NKDQ	1		
	0090800179	heatsink assembly	BBJ0120----Q	1		
	0090800180	heatsink assembly	BBJ5003----Q	1		
	0090100114	pad	MTBH2002BA--Q	1		
	0094400382	Transistor	2SC4237----B-A	1		
	0090200362	mica chip	(20X26)	1		
	0090600081	Screw	GB9074.4-88 M3X16	1		
	0090600066	Nut	GB6170-86 M3	1		
	0090800216	heatsink assembly	BBJ0117----Q	1		
	0090800182	heatsink assembly	BBJ0112----Q	1		
	0090100114	pad	MTBH2002BA--Q	1		
	0094400465	Transistor	2SD1651----B-A	1		
	0094400564	IC	NLA7830---NZ	1		
	0090600070	Screw	GB9074.4-88 M3*14	1		
	0090600067	Screw	GB9074.4-88 M3*10	1		
	0090600066	Nut	GB6170-86 M3	2		
	0090200250	Wire holder	MTAJ0071AG--Q	1		
	0090800217	heatsink assembly	BBJ0118----Q	1		
	0090800218	heatsink assembly	BBJ0111----Q	1		
	0094400565	IC	LA4275	1		
	0090600067	Screw	GB9074.4-88 M3*10	1		
	0090600066	Nut	GB6170-86 M3	1		
	0090800219	heatsink assembly	BBJ0067----Q	1		

# List of Parts

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Location	Naterial Code	parts Name	Type	Q'ty(Unit)	Remark
	0090100115	Heatsink	MTBT2001BC--Q	1	
	0094400357	IC	L7812CV	1	
	0090600012	Screw	SJ2824-87 ST3*8F	1	
	0094002326	brack assembly	BJA5022----Q	1	
	0090200266	bracket	MTAC0043AC--Q	1	
	0090600013	Screw	SJ2825-87 ST3*12F	6	
	0090200268	FBT holder	MTAC0044AC--Q	1	
	0090200361	plastic board	MTAH2001AA--Q	1	
	0090600015	Screw	SJ2824-87 ST4*12F	1	
	0090200249	Power-Switch cap	MTAM0007AC--Q	1	
	0090200244	clamp	040	1	
	0090200420	switch transition pad	MTAW0014AC--Q	1	
	0090400763	Wire	JT22210D0113Q	1	
	0091800598	PCB	PXE5102----Q	1	
R901	0094100779	Resister	RT13-1/6W-22KΩ±5%-----T	1	
R904	0094100779	Resister	RT13-1/6W-22KΩ±5%-----T	1	
R902	0094100039	Resister	RT13-1/6W-68KΩ±5%-----T	1	
R905	0094100039	Resister	RT13-1/6W-68KΩ±5%-----T	1	
SW901	0094000440	Push switch	KFC-A06-21050	1	
SW902	0094000440	Push switch	KFC-A06-21050	1	
SW903	0094000440	Push switch	KFC-A06-21050	1	
SW904	0094000440	Push switch	KFC-A06-21050	1	
SW905	0094000440	Push switch	KFC-A06-21050	1	
SW906	0094000440	Push switch	KFC-A06-21050	1	
XS901	0090400627	Wire	JT3221-C0048Q	1	
K001	0094300140	Connect housing	AV1-A1	1	
K002	0094300141	Connect housing	AV1-A1	1	
K003	0094300165	Connect housing	AV1-A1	1	
ZX001	0090400369	Wire	JT3311-A0094Q	1	
	0091800112	PCB	PXK5005----Q	1	
	0090600034	Screw	SJ2824-87 ST3*12F	2	

## Damageable Parts List

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### 16. Damageable Parts List

Location	Material code	Part name	Type	Q'ty	Reparation
F501	0094000150	Fuse	T2.5A/250V		
A101	0094000444	Tuner	TDQ-3B6HR-IEC-38.9	1	
	0094000809	Remote controller	HYF-30A	1	
R558,R55	0094101006	Resister	RF10-1W-1Ω±5%-15-C-A	1	
XZ601	0094300121	CRT Socket	GZS8-6-5A	1	
N101	0094400314	IC	LA7910	1	
N201	0094400343	IC	TB1238AN	1	
	0094400357	IC	L7812CV	1	
	0094400382	Transistor	2SC4237----B-A	1	
	0094400465	Transistor	2SD1651----B-A	1	
V512	0094400539	Transistor	2SC3807(R)----B-A	1	
	0094400564	IC	NLA7830----NZ	1	
	0094400565	IC	LA4275	1	
D902	0094400636	IC	CAT24C08P	1	
D901	0094400869	IC	87CM38N-3D27(V2.0)	1	

## 17. Information of Resistors and Capacitors

### CAPACITORS

#### **RESISTORS & CAPACITORS-PARTS NO.CODE**

**Notes:** 1. part numbers are indicated on most mechanical parts.

Please use this part number for parts orders.

2. The unit of resistance is  $\Omega$  (ohm). K=1000  $\Omega$ , M=1000K  $\Omega$

3. The unit of capacitance is  $\mu F$  (microfarad). 1pF=10<sup>-6</sup>  $\mu F$ .

Numbering system of Capacitor

Example

<u>CL42</u>	-----	<u>17</u>	-----	<u>50V</u>	-----	<u>2F4</u>	-----	<u>104 *</u>	-----	<u>Z</u>
Type		Voltage				Value (pF)		Tolerance		
<u>CL21X</u>	-----	<u>100V</u>	-----	<u>223 *</u>	-----	<u>J</u>				
Type		Voltage		Value (pF)			Tolerance			
<u>CL110X</u>	-----	<u>25V</u>	-----	<u>100 <math>\mu F</math></u>	-----	<u><math>\pm</math></u>	<u>20%</u>			
Type		Voltage		Value			Tolerance			
<u>*</u> <u>104</u> = $10 \times 10^4$		<u>223</u> = $22 \times 10^3$								

Numbering system of resistor

Example

<u>RY17S</u>	-----	<u>2W</u>	-----	<u>390</u>	-----	<u>J</u>	-----	<u>05-E-A</u>
Type		Wattage		Value( $\Omega$ )			Tolerance	
<u>RS11</u>	-----	<u>1/2W</u>	-----	<u>1.8K</u>	-----	<u>K</u>		
Type		Wattage		Value			Tolerance	

#### ABBREVIATION OF PART NAME AND DESCRIPTION

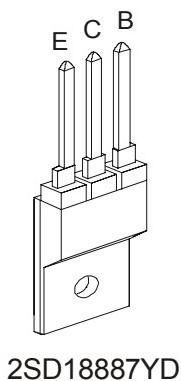
RESISTOR

CAPACITOR

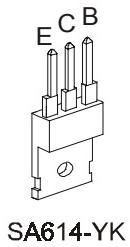
PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
T	Carbon	F	$\pm 1\%$
S	Solid	J	$\pm 5\%$
J	Metal	K	$\pm 10\%$
Y	Oxide	M	$\pm 20\%$
F	Fuse	G	$\pm 2\%$

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	J	$\pm 5\%$
T	Ceramic	K	$\pm 10\%$
L	Film	L	$\pm 15\%$
D	Electrolytic	M	$\pm 20\%$
A	Tantalum	P	+100%-0%
		Z	+80%-0%

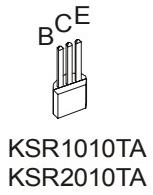
## Terminal view of transistors



2SD18887YD



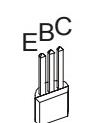
SA614-YK



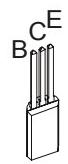
KSR1010TA  
KSR2010TA



KSC815-YTA  
KSA539-YTA



BC548-CTA



KSC2331-YTA

# Sincere Forever



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